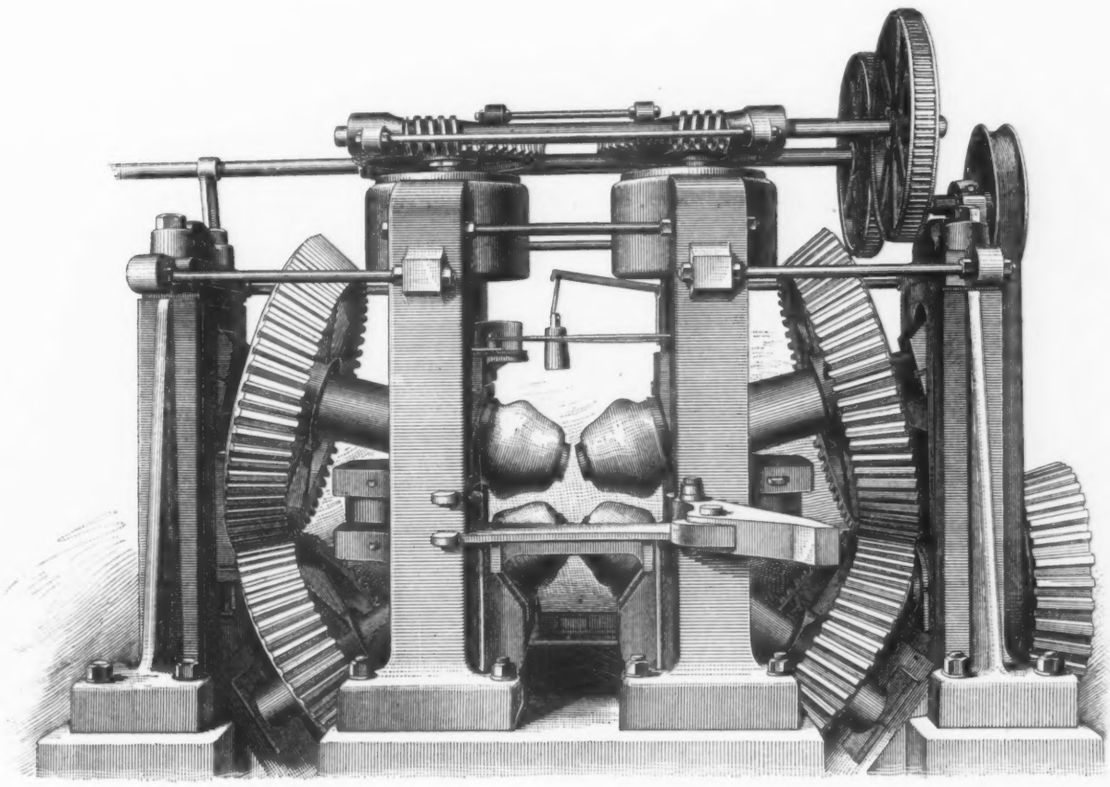
THE IRON AGE

THURSDAY, AUGUST 8, 1889.

Machine for Rolling Car-Wheels.

For some time past the Continental Rolled Steel Car Wheel Company, of Norristown, Pa., have been experimenting with machinery designed to roll steel car-wheels from blanks somewhat resembling the wheels in shape. The accompanying engraving is from a photograph of the perfected machine. The heated blanks, of either Bessemer or open-hearth steel, are rolled between six powerful rolls, which are arranged two on top, two beneath and two touching the rim of the wheel The upper and lower rolls work as two pairs and form the web of the wheel. By the use of rolls of the required shape any desired form can be given to the web and hub of the wheel. The two outer rolls, or those which are mounted on vertically-placed axles, form the tread of the wheel as the metal is forced out to them by the action of the two pairs of rolls. By means of the worm and gear mounted on top of the frame the two upper rolls can be raised or lowered as required while the rolling of the wheel is progressing. The other rolls are fixed in place. It is thought that a pressure of 200 tons to the square inch will produce the best results. The evenness of the pressure results in a smooth surface and evenness in the texture of the wheel. It is claimed that the solid rolled-steel car-wheel will have a longer life, will weigh less and will be cheaper and stronger than the cast-iron wheel.

The work of the Continental Rolled Steel Car Wheel Company has thus far been entirely of an experimental nature, the final tests having resulted in the satisfactory manufacture of rolled-steel car-wheels. The company secured the use of an unused rolling-mill in which to make their experiments. Now that practical results have been reached, the company will establish its own plant, if they do not remodel the plant which has been used for the experimental tests, with a capacity of 100 wheels a day to start with. For this purpose six sets of rolls will be placed, and more added as required. The company will manufacture its own wheel blanks, the steel which will be used being manufactured in Norristown. All these preliminaries are being attended to now, and the works will be put in operation as soon as possible.



MACHINE FOR ROLLING CAR-WHEELS, BUILT BY THE CONTINENTAL ROLLED STEEL CAR WHEEL CO.

Important Railroad Decision.

The Interstate Commerce Commission on the 23d ult., in an opinion by Commissioner Schoonmaker, announced its decision of the case of the New York Produce Exchange against the New York Central and Hudson River Railroad and others. The case relates to inland and ocean export rates, and involves questions of how they should be made and of unjust discrimnation in the inland proportion. The opinion states: "From November 4, 1887, to February 20, 1888, the trunk lines, so called, under resolutions of their association, made through export rates of which the inland proportion accepted by them was, at the port of New York, often 10 cents or more per 100 pounds less on like traffic than the published tariff rates charged at the same time to the same port." It was held by the commission that the discrepancy between the proportion of the through rate accepted and the established tariffs for sea-board consignments for the same inland carriage is not shown to have been justified by any circumstances tending to show that it was just or proper, and that it must therefore be deemed an unjust and unlawful discrimination as against the transportation terminating at that port. It is essential that any method for making rates should be practicable, and not afford a cover for discrimination and injustice. The only practicable mode yet devised for making through export rates, as appears by past experience, is to add to the established inland rates from the interior to the sea-board the current ocean rates. Under the amendments of March 2, 1889, to the statute, requiring ten days' previous notice of advances and three days' previous notice of reductions in rates, they cannot be varied from day to day, or oftener, to meet fluctuations in ocean rates. Whenever a tariff is established for merchandise billed or intended for export by sea, and ocean rates are not specified, either because of fluctuations or for any other reason, so that only the charge for inland transportation is definitely fixed, the tariff filed and made public should show the rate charged by the inland carrier or carriers to the point of export, including all terminal charges and expenses, and should also show in what manner the through rate to the point of ultimate destination is to be determined, whether by the addition of the ocean rate from time to time prevailing or how otherwise.

AMERICAN ENGINEERS IN GERMANY.

(*Editorial Correspondence.*)

At Gelsenkirchen two groups were formed, one visiting the works of the Schalker Gruben und Huetten Verein under the guidance of the general manager, F. Burgers. The blast-furnace plant of the company has developed rapidly, the output rising from 30,000 tons of pig-iron in 1878 to 60,000 tons in 1880, 80,000 tons in 1882, 130,000 tons in 1884, 150,000 tons in 1886 and 188,000 tons in 1888. To the American visitors the most interesting part of the plant was the utilization of the cinder for the manufacture of brick. The cinder is granulated by flushing into water, and is then mixed with 4 to 6 per cent. by weight of hydraulic lime. It is then formed into brick in three horizontal presses, each of which makes about 10,000 brick per day. They sell at about 19 to 20 marks, while ordinary brick command from 24 to 25 marks. They cannot, however, be used for corners, for which common brick or stone is employed. The cinder brick must lie for three months before use, and it is considered better to keep them for a year.

The second group in Gelsenkirchen went, under the guidance of Theodore Möller, of Brackwede, and Manager Huessener, to inspect the coal distillation plant at Bulmke. Your correspondent accepted the invitation of Herr Haniel to pay a flying visit to the great plant of the Gutehoffnungshuette at Oberhausen on the Ruhr. As in the case of a number of large establishments visited, the time was utterly inadequate to do justice to them. This is particularly true when the works are old, with all that generations of extensions imply. The Oberhausen establishment grew out of a small mill, still in existence, built in 1808 by Jacobi, Haniel & Huyssen to utilize convenient water-power. Now the plant, since 1872 in the hands of the joint-stock company Gutehoffnungshuette, comprises 10 blast-furnaces served by 34 hot-blast stoves, producing from native and imported ores forge, Bessemer and Thomas pig and spiegeleisen and ferro, one stack running on the latter. The furnaces, not being modern, have nothing to commend them to special attention, except that they follow the practice, which appears to be quite general with the plants located in the coal region, of coking the coal in the immediate vicinity of the furnaces and utilizing the waste gases for raising steam. The coal is brought from the colliery by a wire-rope tramway, a method of transportation which is employed in Germany with astonishing frequency. At the Oberhausen blast-furnaces the cinder is granulated and conveyed to an enormous dump in that form, the wire-rope tram again serving as the conveyer. It appears that an outside firm made a contract with one of the railroads of the district to furnish ballast for their road from this dump, assuming that the cinder had retained its granular form. It was found, however, that at a small depth from the surface the mass of granulated cinder was so compacted that it could not be cheaply removed, so that the idea had to be abandoned.

The steel-works at Oberhausen, while not modern, are interesting, because they work direct, and, like many other establishments, run the acid and the basic process indifferently. The plant consists of four 10-ton converters casting into two pits. The basic bottoms are made in the same way—by stamping—having 75 holes ⅝ inch in diameter. Their average life is 20 blows, 23 to 26 being occasionally reached, with a charge of 8.3 tons. The time for a blow is about 17 minutes, 45 blows being made in 24 hours. The ingots are stripped and are dropped into 16 soaking-pits, served by one crane. The ingots are bloomed in six passes, the train being driven by a single-cylinder vertical engine. The blooms are cut by a hydraulic shear and are transferred to the billet train, driven by the same engine on the other side of it. This somewhat bold conception of driving two trains with one single-cylinder engine is certainly novel, though it is not likely to commend itself to American rolling-mill engineers for imitation. As is usually the case when visitors are about, the engine was stalled. Still, the plant as it is turns out 45-mm. (1¾-inch) rod billets direct from the pig without calling for the consumption of any coal.

The Oberhausen works have four basic open-hearth furnaces built in a line, melting a charge of 11 to 12 tons in four to five hours. Only the hearth is made of basic brick, burned in boxes. Then follows a vertical zone of chrome iron ore, the roof being silica brick. Four changes are made in one day and five the next. The furnace lasts about 180 charges on an average, the maximum being 200 charges. The ladle is carried on a car running along the line of the furnaces, which, like all the basic open-hearth plants in Germany, run on pig and scrap exclusively.

The rolling-mill was idle in most of its departments when visited by your correspondent, there being nine trains making bars, shapes, beams, channels, rails, steel sleepers, fish-plates, and wire rods.

One interesting thing was noticed,

AN AUTOMATIC TIME-KEEPER,

made by A. Dryer, of Bochum. It is a round table carrying a series of pockets, driven by clock-work in such a manner that every quarter of an hour the table revolves the distance equal to the width of a pocket. On both sides of the room are two large boards, upon which are hung metal checks bearing a number, each man having two checks, one yellow and one white. When he enters the works he takes his yellow check and drops it into the slot, delivering it into the pocket which corresponds to the time of his arrival, the clock being in full view. When he leaves work he drops his white check into the same machine. During the day the pockets are emptied and the numbers of them are entered in the time-books in the proper manner. This automatic time-keeper does not, of course, reduce the labor of keeping the records, but it does act as an infallible arbiter in any possible disputes which may arise. At the Oberhausen works one machine of this kind suffices for 1300 men. Your correspondent visited only a part of the works of the Gutehoffnungshuette, who are also very large manufacturers of machinery, making a specialty of blowing, marine, pumping and hoisting engines, rolling-mill machinery and boilers. They are also bridge-builders on a large scale.

Returning to Düsseldorf, the engineers barely had time to prepare for the *conversazione* in the Zoölogical Garden offered by the Niederrheinische Bezirks-Verein Deutscher Ingenieurr. The German engineers have one great society, numbering upward of 5000 members, cut up territorially into a number of district associations who hold frequent independent meetings for the reading and discussion of papers, one great annual meeting uniting them all, while a splendidly equipped and brilliantly edited weekly journal prints papers and abstracts of local proceedings. It was the Lower Rhine district association which welcomed the Americans. Sitting down to an *al fresco* meal at long tables, visitors and hosts and their ladies enjoyed an agreeable social reunion, sipping a wonderful German concoction called "Erdbeerenbocole," while an excellent band was discoursing light music. Herr R. M. Darlen, of Düsseldorf, a rolling-mill engineer who is known to many in America through his writings, as president of the society bid the engineers a hearty welcome. Mr. Oberlin Smith replied in a humorous strain, finally working himself up to the pitch of expressing his gratitude in German, an effort which was received with rapturous applause. Herr Herbertz, of cupola fame, invited the engineers to Cologne, distributing among them an excellent little work in English on the famous cathedral.

After the supper the party viewed the illumination of an imitation of an old mine in the Zoölogical Garden, finally returning to the ball-room, where an impromptu dance, in which the Americans joined enthusiastically, kept the company together till near midnight.

On Thursday an early start was made, the first objective point for our party being the Rheinische Stahlwerke, at Meiderich, near Ruhrort. Others availed themselves of the privileges extended by the following establishments:

Englerth & Cünzer, Eschweiler, rolling-mill, engineering appliances.
Haniel & Lueg, Grafenberg bei Düsseldorf, forge, pipe works, mining machinery.
Piedboeuf, Dawans & Co., Oberbilk-Düsseldorf, plate-rolling.
Jacques Piedboeuf, Oberbilk-Düsseldorf, boiler-making.
Gasmotorenfabrik Deutz b. Köln, gas engines.
Actien-Gesellschaft Humboldt, Kalk bei Köln, foundry, engineering-shops.
Funcke & Elbers, Hagen, forge and rolling-mill.
Eicken & Co., Hagen, cast-steel works.
Peter Harkort & Sohn, Wetter, plate-rolling.
Märkische Maschinenbau-Anstalt, Wetter, foundry, engineering appliances.
Hochfelder Walzwerk, Duisburg, rolling-mill, bar-iron.
Niederrheinische Hütte, Duisburg, blast-furnaces, coke-ovens.
Dr. C. Otto & Co., Dahlhausen, builders of coke-ovens, fire-bricks, &c.
K. & Th. Möller, Brackwede, engineering appliances, boiler-making.
Aplerbecker Hütte, Aplerbeck bei Dortmund, blast-furnaces, coke-ovens.
Westfälische Union, Hamm, forge and puddling works, wire-sheet rolling.
Westfälische Union, Nachrodt, forge and puddling works, wire-sheet rolling.
Zeche Zollverein (F. Haniel & Co.), Zollverein, coal mining, washing, separating, &c.; coke-ovens.
Zeche Bonifacius, Kray, coal mining, washing, separating, &c.; coke-ovens.
Zeche Emscher, coal mining, washing, separating, &c.; coke-ovens.
Zeche Germania II, Marten, coal mining, washing, separating, &c.; coke-ovens.
Zeche Westhausen bei Bodelschwingh, coal mining, washing, separating, &c.; coke-ovens.
Gebrüder Stumm, Neunkirchen bei Saarbrücken, blast-furnaces, steel-works.
Eisenhütten-Actienverein, Düdelingen (Luxemburg), blast-furnaces, steel-works.
Metz & Co., Eich (Luxemburg), blast-furnaces, steel-works.

With the majority of those interested in steel-making your correspondent went to the Rheinische Stahlwerke, there being in the party representatives of Bethlehem, Pencoyd, Standard, Homestead, Linden and Joliet. The Rheinische Stahlwerke, with the works at Hoerde, were those who purchased the basic patents, deriving from the sale of the works a very large income, which they have appropriated chiefly to the extension of their own plant. They make both Bessemer and open-hearth acid and basic steel, rolling shapes, bars, sleepers and rails.

The chief object of interest was a magnificent new furnace plant, the first stack having been blown in the day before, while the second is under way and two more are planned. They are 23 m. high (75½ feet) by 6.5 m. bosh (18 feet), with coke-oven plant in immediate vicinity and excellent arrangements for handling stock. They are designed to allow of direct working, and will use chiefly minette ore from the Luxemburg district—a lean ore, about 35 to 38 per cent., making an iron with about 1 per cent. of phosphorus, but practically self-fluxing. The works have their own mines. The blowing-engine is a very handsome piece of machinery. Your correspondent noticed one wrinkle, and that is that the air is not drawn from the engine-house, but is taken from the outside. An interesting feature, too, was the application of the Theissen condenser. The usual collation with its toasts and cheers followed, and then the party started for the works of the Dortmund Union, at Dortmund. Here another enormous establishment was rushed through at a rate which allowed of little study, the most interesting part of the plant to the American engineers being the manufacture of forged car and locomotive wheels and tire-rolling.

While the gentlemen of the party were busy inspecting industrial establishments the ladies on both days enjoyed visits to the famous art galleries of Düsseldorf, the artists' club called the "Malkasten" and the studios of some of the leading artists, where they were hospitably received.

With thoughtful courtesy the German ironmasters and colliery proprietors tendered a banquet to their guests on the evening of the 4th of July, the hall being profusely decorated. Herr Th. Moeller, of Brackwede, responded to the first toast, "The Emperor of Germany and the President of the United States," Mr. Partello, American Consul at Düsseldorf, delivering an oration. E. A. Uehling, of Bethlehem, made his maiden speech in German, expressing the gratitude felt by the Americans for the courtesies received. Dr. Beumer spoke to "The ladies," each sentence after it was pronounced being interpreted by C. Kirchhoff, Jr., so far as the suspense of waiting for the verb and the delivery of purposely-involved sentences were not too taxing to memory. Mr. Oberlin Smith praised the achievements of the Germans as gastronomical engineers, while Herr Schroeder spoke on the importance of gatherings of engineers in bringing into closer relationship countries so widely separated as Germany and America. After the banquet the indefatigable Americans again led in dancing.

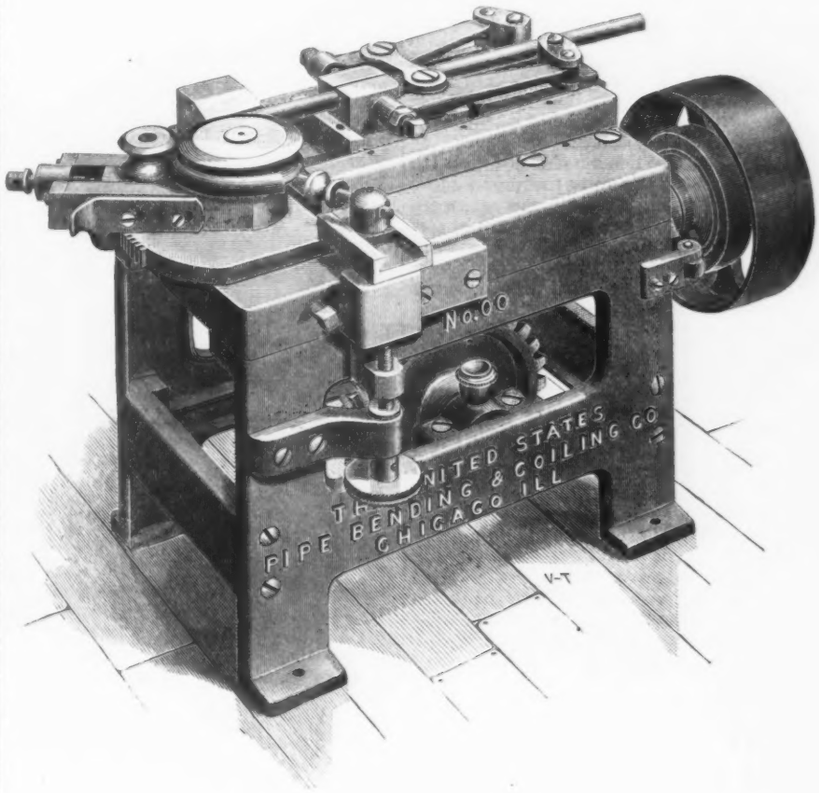
The climax, however, was reached the next day, on Friday, when the party started, at 7 o'clock, by rail to Cologne, where a brief visit was made to the great cathedral. Again taking the train the party was conveyed to Coblenz, where at the depot Herr Spaeter, one of the magnates of the city, received the party with an address of welcome. Entering carriages, the party, numbering about 200, were driven to the castle of Empress Augusta, the widow of the late Kaiser Wilhelm I, who received a deputation of them, Oberlin Smith, of Bridgeton, N. J., Walter Wood, of Philadelphia, and your correspondent. In festive array the delegation, bearers of an enormous bouquet, were received. Empress Augusta, who is an old lady over 75 years of age, surprised the Americans by speaking English fluently, though in a low tone, thus relieving them of much embarrassment. She is deeply interested in charitable works, particularly the Red Cross Society, and spoke feelingly of the horrors of the Johnstown calamity, to the relief of whose sufferers she contributed liberally. As a special favor the party were conducted through the castle and later through the gardens, whose care is a great delight to the Empress and which no one is allowed to enter. At the invitation of the Empress the engineers partook of a collation in an adjoining garden. They were then driven to the wine cellars of Deinhard & Co., the largest manufacturers of sparkling wines on the Rhine. Under the guidance of the principal owner, Herr Wegeler, the process of manufacture was explained. Then followed a trial of some of the choicest vintages of the Rhine, which inspired one of the German visitors poetically, while Herr Wegeler, who was one of the jurors of the Philadelphia exhibition, spoke gratefully in English of American hospitality.

Driving to the banks of the Rhine, the party went on board of a gayly-decorated Rhine steamer specially chartered and sailed down that famous stream to Koenigswinter. There by rack road they were conveyed to the Drachenfals, a hill overlooking the Rhine valley. Sitting down to a splendid banquet, the joyful mood of all found expression in rapid succession of speeches in German and in English, including a song by Dr. Beumer, which was a humorous mixture of both, the entire company joining the band in the chorus. The Americans caught the spirit of the occasion, contributing freely to the flow of oratory, among the speakers being Oberlin Smith, Walter Wood and E. A. Uehling. Returning to the steamer, the party sailed down the Rhine to Cologne during the evening, reaching that city at 1 o'clock. On the way there was a constant interchange of cannonading between the steamer and industrial establishments and private residences on both banks, in many cases fire-works and illuminations distinguishing the homes of some of the hosts on board. At Cologne the ancient walls of the city and the boat bridge shone in lurid Roman light, thousands of people having gathered at the wharves to witness the unusual festivity. The walk through the city to the station was a triumphal procession, a fitting climax to the visit of the American engineers. Bidding farewell to their generous entertainers, the party scattered next morning, deeply impressed with the cordiality of their fellows on the Continent.

Pipe Bending and Coiling Machine.

With this machine either the heaviest of wrought iron pipe or the lightest of brass or copper pipe can be bent, coiled or coned in any shape desired without either heating or filling it, and with perfect accuracy as regards the size of the bends wanted, or the diameter or spacing of the coils. Any number of a particular coil, as regards the diameter or spacing, can be made, the machine having been adjusted to the particular size wanted. This can be done at the rate of 3 feet per minute.

The construction and operation of the machine will be clearly understood from the engraving. The pipe is fed through the dies shown at the right in the cut and through and around the circular dies at the left. It is claimed that this machine, which is made by the United States Pipe Bending and Coiling Company, of Chicago, Ill., will save its cost in a short time, and that the condition of the pipe will be improved by the cold-rolling process. The scale on the inside of the pipe, which is an accompaniment of hot bending, is entirely absent, and the inside is left as smooth as the outside, which in the case of brass and copper pipe needs no refinishing, as it is not marred. It is evident that any length of pipe can be bent or coiled. The machine we illustrate will bend from 1 to 2 inch wrought-iron pipe and the corresponding sizes in brass and copper.



PIPE BENDING AND COILING MACHINE.

St. Louis has determined to have a great exposition in 1892, and Chicago has also appointed a committee who want $5,000,000 for a like purpose.

Tinning Hard-Steel or Case-Hardened Articles.

In a recent issue of the *English Mechanic* F. H. Wenham thus replies to a question upon the method of tinning hard steel, &c.:

In the first place a bath of melted tin will not injure the temper or materially soften hardened-steel surfaces, inasmuch as tin melts at 442° and polished steel acquires straw color at 460° F. The iron or steel article must first be freed from scale (if any) either from the foundry or forge by means of a pickle of dilute sulphuric acid and the scratch-brush or sand. If the articles are of steel and have been quenched or hardened in oil, every trace of this must be removed by immersion in a boiling soda lye; next, the surface must be made chemically clean—even the film of oxide due to a pale straw color will prevent the due adherence of the tin to the steel. Have a bath consisting of 1 part of hydrochloric acid to about 20 parts of water; hold the article with a pair of brazing-tongs, and stir it for a few seconds in the bath; withdraw it, and while still wet instantly immerse it in a ladleful of melted tin, the surface of which should be kept from oxidizing by a flush of good clean tallow. In less than half a minute the article, when withdrawn, will be found completely tinned. Of course precaution must be taken not to overheat the tin, but keep it down to the proper melting temperature. Over 30 years ago, when milling-machines (which have now almost superseded the planing-machine) were but little known and had to be tenderly used for the want of the now accompanying spacing emery rubber-grinder for sharpening the teeth or cutters, I had occasion to use the above process in order to get over this difficulty. The cutter-block was inclosed in a turned and truly concentric ring, and the hard-tin cutters set in place in duly-spaced notches in the sole-plate, with their cutting edges in close contact with the ring; melted tin was then poured in the annular space containing the cutters, combining them as one piece with the block, which (when the molding-ring was drawn off) was then ready for use. When the edges of the cutters required renewal they were melted out, sharpened individually and cast in place again. This now would be considered an obsolete contrivance.

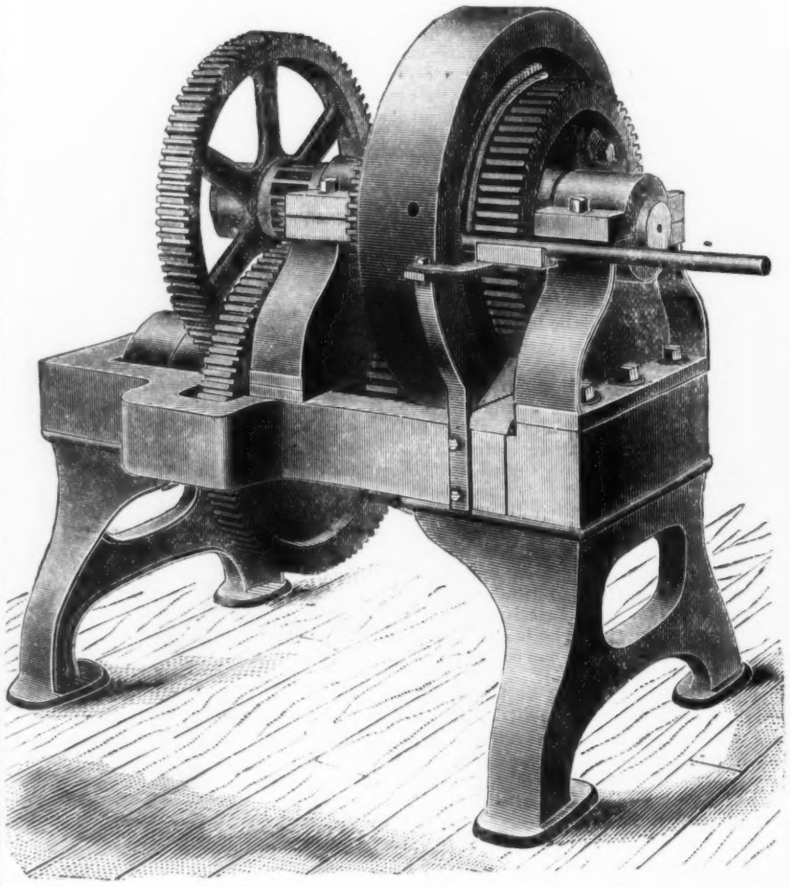
The Rapid-Transit Problem Abroad.—London is being worried by the rapid-transit problem. The latest plan proposed closely resembles that known as the Arcade, which was advocated for this city. The idea is to excavate the full width of the street to a depth of 14 or 15 feet, and to put at the bottom of this excavation a stratum of concrete about 2 feet thick. A strong wall is to be built at each side about on a line with the edge of the sidewalk, and upon these walls will rest steel girders, which will carry a floor of steel plates protected by asphalt, which will carry the usual street pavement. The excavation will give room for four parallel tracks, while at each side and outside of the railroad proper will be a gallery in which can be placed the water-pipes, gas-pipes, conduits for electric wire, &c. The motive power of the proposed line is electricity, provided from stations placed wherever it may be found most convenient, as it can be readily conducted to the line where it is wanted. Divisions are to be made between the separate tunnels of the subway by panels of a new material known as ferflax, which is a tough substance formed by compressing vegetable fiber upon a foundation of steel netting. These panels will be supported by pillars placed at proper intervals and connected above with the floor-girders. Elevated railroads are not considered admissible in London, while the present under-ground roads, although largely used, are not favorably regarded by the public, owing to their poor ventilation, darkness and the long flights of stairs required to reach them from the street, on account of their depth below the surface. Additional facilities are needed, however, and this plan is proposed to meet the exigencies of the case

Machine for Making Rolled Forgings.

The machine we herewith illustrate belongs to that class in which the forging is done between two forming-dies, one of which is moved over or past the other while in contact with the bar destined to form the forging. It is well known that machines constructed in accordance with this principle will perform their work rapidly and accurately, and that exact reproductions are assured. An almost endless variety of forms can be rolled, from the plain cylindrical to the V or square shaped thread.

The machine illustrated consists, in reality, of but two main parts, which are two wheels, shown at the right in the engravings, so formed and arranged that one revolves within the rim of the other. These wheels are suitably mounted upon the same shaft, and are provided with gearing by which they are driven in opposite directions. The larger or outer wheel is formed with a projecting rim, which forms a recess within which the smaller wheel revolves. The latter wheel is similarly formed. A segment of the rim of the small wheel is cut out to form an opening in which fits a block having its outer edge curved to correspond approximately with the curvature of the wheel. The block is furnished with screws, by which it may be adjusted and held in any desired position. Secured to the curved outer edge of the block is an elongated bed-die, having in its outer or working face a longitudinal groove, which is curved in cross-section and increases both in width and depth from one end to the other. Projecting from the working face of the die, along each side of the groove, is a flange or cutting boss, both of which gradually increase in hight from the narrower to the wider end of the groove. A similar die is secured to the inner face of the rim of the large wheel. Both dies are placed in the same vertical plane, but they are reversely arranged—that is, when the wheels are revolving in opposite directions the converging ends of the cutting bosses meet and pass each other first. Secured to the side of the block carrying the die of the small wheel is an adjustable plate having a serrated edge, which is curved to correspond with the curvature of the rim of the wheel. A similar plate is secured to the large wheel. These plates are so adjusted that when they stand opposite each other the distance between their serrated edges is slightly less than the diameter of the rod to be rolled. When the rod is placed in the machine it is grasped by the plates and rotated continuously until it has passed the dies. This construction prevents imperfections in the finished work, which would be liable to result if a rotary movement were not imparted to the rod. It is evident that as the dies pass each other a perfect sphere will be rolled from the rod. It is further apparent that almost any desired form can be rolled by providing the wheels with suitable dies. Some of the shapes rolled are shown in the small engravings.

This machine is manufactured by the Gould Rolling Machine Company, of Leominster, Mass.



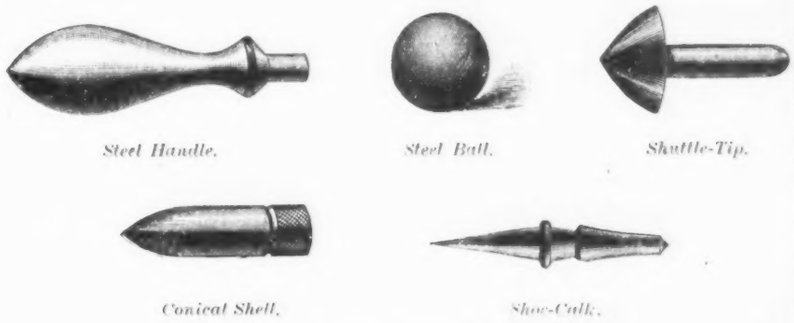
PERSPECTIVE VIEW OF MACHINE FOR MAKING ROLLED FORGINGS.

High Water in the Lakes.

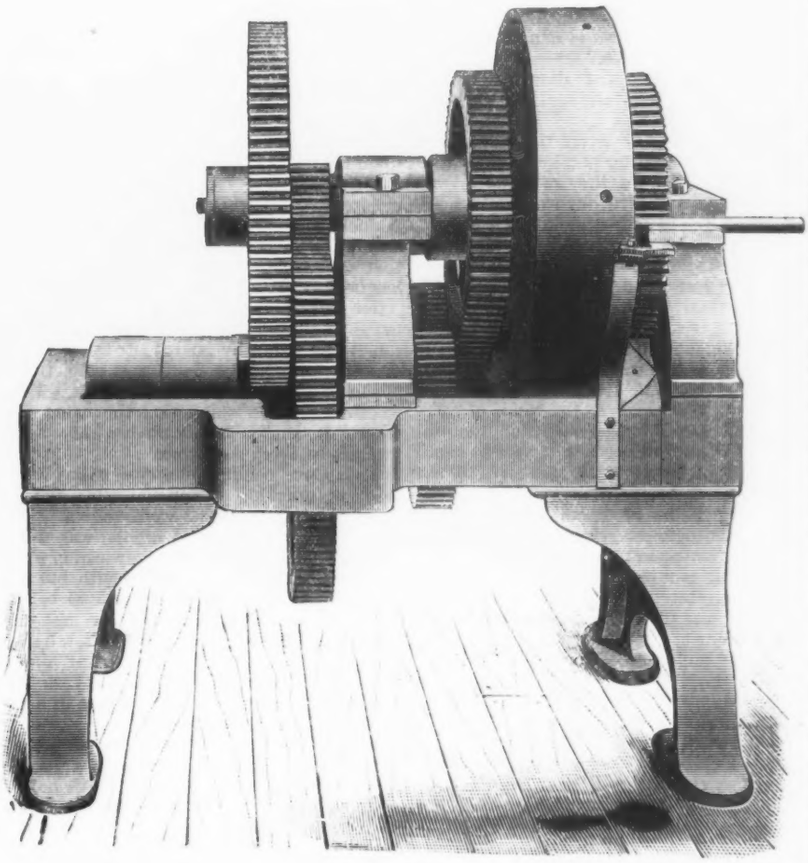
The able arguments advanced at various times within the past few years, says the Cleveland *Leader*, to prove that the level of the great lakes was subject to periodic changes, each extending through several years, and that an era of low water was beginning, do not seem so impressive just now as they did early in the season. The depth of water in the Sault Ste. Marie and St. Clair Flats canals and in the Grosse Point Channel was for some weeks so much less than usual that great loss and inconvenience to vessel men resulted, and there appeared to be ample cause for the alarm manifested by many persons interested in lake navigation. If the periodic theory of low water had fitted the case this trouble would, moreover, have become worse as the summer advanced. On the contrary, the stage of water at the points named has steadily improved until the largest carriers on the lakes are breaking the record in the way of big loads. One of them, the steamship Corsica, is bound down with 2786 gross tons of iron ore, equivalent to 3120 net tons of 2000 pounds, exceeding by about 30 tons, we believe, the heaviest cargo ever before carried by a lake vessel.

A German paper describes a simple method of obtaining tight pump-valves. The plan consists simply in grooving the valve-sheets and inserting a rubber cord in the grooves. As the valves set themselves the cord is compressed and forms a tight joint. An additional advantage is that it prevents the shock ordinarily produced by rapid closing and prolongs the life of the valve-seat. The importance of this will be appreciated by those familiar with the working of pumps under high pressure. The rubber cord when worn can be easily and quickly replaced. The paper states that the device is employed with very satisfactory results in a number of German mine pumps, and that it was first brought out by the Prince Rudolph Iron Works, at Dulmen, Germany.

Senator J. P. Jones, of Nevada, and D. O. Mills, of New York, own gold mines in Alaska which are said to yield a net profit of $1800 a day.



ROLLED FORGINGS.



SIDE VIEW OF MACHINE FOR MAKING ROLLED FORGINGS.

THE WORTHINGTON HIGH-DUTY PUMPING-ENGINE.

[*With Supplementary Sheet of Engravings.*]

The firm of Henry R. Worthington, of this city, have just issued a pamphlet in French and English under the title "The Worthington High-Duty Pumping-Engine at L'Exposition Universelle de 1889." This gives illustrations of the principal styles of high-duty pumping machinery made by this firm, and fully and clearly describes the compensating device, which is the most important improvement in pumping-engines since the invention of the direct-acting pump nearly 50 years ago by the late Henry R. Worthington. By means of this attachment, which can be attached to any Worthington pump, the duty of the pump is nearly doubled—in other words, the duty of the pump is advanced at one stride from the low-duty of 50,000,000 to 60,000,000 to the high-duty class of over 100,000,000. Mainly for the purpose of describing this improvement, the decided advantage of which is apparent, we present the accompanying engravings, which are taken from the pamphlet above mentioned.

The pressure-pump here shown is similar in construction to those which have been employed so successfully in pumping oil through the so-called pipe-lines, where the work required is exceedingly severe, and where machinery which can be relied upon is imperatively needed. Two of these pumps are in service in connection with the Edaux lifts, which work to the highest level of the Eiffel Tower, the maximum lift being 918 feet. From the three remaining views the construction, application and operation of the compensating attachment will be readily understood and the work it performs appreciated.

The load upon or resistance to a pumping-engine is uniform, and therefore the propulsive energy of the machine must be practically uniform, either directly by virtue of the action of steam upon the pistons or if the impulse of the steam is variable its excesses and deficiencies must be made good by the mechanism of the engine itself.

Heretofore the direct-acting steam-pump—in which the power of the steam is transferred to the plunger in the pump in a direct line and without the use of any revolving parts—used steam without any expansion whatever. Theoretically the highest expansion of steam means the greatest economy, but practically there is a limit to the usefulness in expansion marked by the point at which its gain is balanced by cylinder condensation.

Steam used expansively in a direct-acting pump presents the following problem: At the beginning of the stroke the impulse of the steam upon the pistons is far in excess of that demanded for moving the load; at the terminus of the stroke the impulse of the steam is very much less than what is required; the mean pressure during the stroke is sufficient, but the inequalities must be instantly equalized when they occur, or else the engine will start with a violent plunge, and stop short of the end of its stroke at a point where the driving forces sink below what is demanded by the resistance. In the crank and fly-wheel engine this equalizing effect is brought about by a ponderous fly-wheel, which absorbs, by its inertia, the excess of energy at the beginning of the stroke and gives it out at the end. In other words, the steam impulse upon the pistons in excess of what is actually required to move the load at the beginning of the stroke is expended in inertia in trying to increase the speed of the fly-wheel, while near the end of the stroke, when the ex-

pansion of the steam in the cylinders carries the pressure below a point that will balance the resistance, the load is moved along by the momentum of the fly-wheel, the result being that the steam action upon the plungers is made uniform through the medium of the fly-wheel. In the Worthington high-duty engine the same effects of high steam expansion are obtained, but the uniform distribution of the steam pressure is secured by an entirely different method, much simpler and more effective, and embracing none of the objections of the fly-wheel, and presenting many positive advantages.

From a lecture entitled "Pumping Machinery, Ancient and Modern," recently delivered before the class of mechanical engineering of Sibley College, Cornell University, by J. F. Holloway, past president of the American Society of Mechanical Engineers, we take the following interesting description of this improvement:

"To the ordinary compound direct-acting steam-pump as usually built there is attached a plunger-rod which projects through the outer end of the pump-chamber, and around which there is the usual stuffing-box for packing the same. On the end of this plunger-rod is fastened a cross-head which moves in guides that are bolted on the outer end of the pump. On this cross-head, and opposite to each other are semicircular recesses. On the guide-plates are cast two journal-boxes, one above and the other below the plunger-rod, both equidistant from it, and at a point equal to the half stroke of the cross-head. In these journal boxes are hung two short cylinders on trunnions, which permit the cylinders to swing backward and forward, in unison with the motion of the plunger-rod. Within these swinging cylinders are plungers, or rams, which pass through a stuffing box on the end of the cylinder, and on their outer end they have a round projection which fits in the semicircular recesses in the cross-head, and consequently, as the cross-head moves in or out of the pump it carries with it these two plungers, which in turn tilt the cylinders backward and forward. These swinging cylinders are called 'compensating cylinders,' and they are filled with water, except when the pumping-engines are used on oil lines, when they are filled with oil. The pressure on the rams within the compensating cylinders is produced by connecting the compensation cylinders through their hollow trunnions with an accumulator, the ram of which moves up and down as the rams of the compensating cylinders move in and out. The accumulator used is of the differential type—that is, it has below a small cylinder filled with oil or water, in which its ram moves, while above it has a much larger cylinder filled with air. On the top of the ram of the accumulator is an enlarged piston-head which fits closely in the air-cylinder. So it will be seen that the pressure per square inch on the ram of the accumulator will be the pressure of the air in the air-cylinder per square inch multiplied by the difference between the area of the air-piston and the ram of the accumulator. This difference of areas is a matter of calculation based upon the particular service for which the pump is constructed. The pressure in the air-cylinder is controlled by the pressure in the main delivery-pipe of the pump, as it is connected to the air-chamber on the main delivery.

"Having described briefly the construction of this new and novel attachment to the direct-acting duplex pump, I will now describe as best I can without a model its effect on the operation of the pump. We will suppose the pump about to begin its outward stroke. At this time the compensating cylinders will be turned so as to point toward the outer end of the pump, with their plungers at the extreme point of their outward stroke, and at an acute angle with the pump plunger-rod, and with the full pressure of the accumulator load pushing them against the advance of the pump-plunger. As the pump-plunger begins its outward stroke, each forward movement it makes changes the angle of the compensating plungers, until at one-half stroke the two plungers will stand exactly opposite each other and at right-angles with the pump-plungers, and of course in a position where they can neither retard nor advance the movement of the plunger. Now, as the pump-plunger passes the center of its stroke the compensating plungers, being as before said attached to the cross-head of the pump plunger-rod, begin to turn in an opposite direction from which they started, and by degrees, owing to the increasing acuteness of the angle they make with the plunger-rod, they begin to exert a power to push the pump-plunger along, whereas, before and up to the half-stroke they resisted the movement of the plunger. This pushing force increases constantly until at the extreme end of the outward stroke, and when the accumulator plungers are, as at the beginning at their most acute angle, they exert their greatest force in helping to aid the pump-plunger in its outward movement. It is perhaps unnecessary to add that the return stroke of the pump is made precisely under the same conditions as the previous stroke."

[The accompanying diagram clearly shows the positions assumed by the compensating cylinders.]

"If we were to convert the movements of the compensating plungers into a diagram which would illustrate the power they receive and give out we would have a curved line having a point at the half-stroke in which there would be no power exerted, while at one end would be shown a line of resistance above that zero line, which would be the exact result of that resistance at each point in the first half of the stroke, and it would also show on the last half of the stroke the same curve of power given out again. The peculiar shape of this curve is the result of carefully-calculated arrangement of the details of construction, and it can be made to conform very close to the curve of the pressure-line in the steam cylinder at almost any point of steam cut-off." The above makes clear why a duty of 100,000,000 foot-pounds is possible with a direct-acting pump.

The exhibit of Worthington pumping machinery at the Paris Exposition is made up as follows:

At the pumping-station, Quai D'Orsay, is a high-duty pumping-engine for the water-supply of the exposition and also the boiler-feed pumps and one steam-jacket pump; two pressure-pumps operating the Edaux lifts; two boiler-feed pumps at the Electric Syndicate Station, Quai D'Orsay and near Machinery Hall; at the pavilion of the Argentine Republic is a boiler-feed pump in connection with refrigeration and preservation of meat in transportation. Boiler-feed pumps are also in the exhibit of the Babcock & Wilcox Company, the Palais du Trocadéro, and at the exhibit of the Ministry of War. All of the above are in operation. In Machinery Hall is a Worthington regular-pattern pump. At the panorama of the International Petroleum exhibit is a pressure-pump in miniature exhibited as a model of the pipe-line engines.

The Lane Cotton Mills, in New Orleans, have obtained machinery for the manufacture of cotton bagging, and are producing 30,000 yards daily. They have orders to the extent of 7,000,000 yards. The secretary of the National Farmers' Alliance says 30,000,000 yards of the new bagging will be used by planters in baling their cotton the coming season.

The Paris Exposition.

(Editorial Correspondence.)

It may have been a task lightly imposed to place before the readers of *The Iron Age* a full account of the great world's exhibition which is now attracting such crowds to Paris. As a matter of fact, a mere hasty survey of the enormous mass of objects displayed occupies days and involves much physical fatigue. Figures stating acreage under roof are utterly inadequate to convey any idea of the enormous proportions of the show. Your correspondent is inclined to regret what others may find cause to admire. It is distracting to wander day after day for miles through different buildings, each day bringing the discouraging reward of having discovered something which it would have been a pity to miss. Growing familiarity with the exposition modifies many impressions first formed. To a specialist in search of something in his line which is revolutionary or sensational disappointment is sure to come. Rapid as modern progress is, sweeping changes are rare events. He is likely to be much better rewarded when he looks for improvements of detail, when he studies the methods which others have adopted, different from his own, to reach the same end. One hears on all sides from those interested in machinery, for instance, that the Paris Exposition offers little or nothing that is sensationally new, and many of those who have reached that conclusion seem to look upon it as a final condemnation. While the statement of fact is correct, the conclusion is not fairly drawn. Your correspondent has spoken with many thoughtful and progressive Americans, who confess that every hour spent in the exposition has been fruitful of suggestions and ideas. After all, too, the great mass of the articles exhibited are products. There is something painfully inadequate to an ironmaster, for instance, in a vast collection of samples of manufactured articles. He has the lingering conviction that what is shown is the best obtainable, not the product of every-day work.

Your correspondent observed only a few cases of touching simplicity where conspicuously poor articles were shown. In one instance a series of ingots was displayed, which might serve as warning examples of metal honey-combed with blowholes. Even records of individual tests and analyses will not satisfy a rival maker, whose first impulse is the wish to know how the product was made. In spite of himself he will retain after his visits a feeling of disappointment. Another source of annoyance and dissatisfaction is generally the fact that he has no means of satisfying his curiosity or his interest on certain points. The great mass of exhibitors have no attendants, and of those who do very few employ persons having the knowledge or the intelligence to answer questions. The general result is that those who came to study and to learn feel that they have only imperfectly attained their object. They are apt to make it a reproach, unconsciously perhaps, which is unjust, because they hoped for more than they could possibly secure. Your correspondent believes that this is the origin of much of the criticism which, while it applies to all exhibitions, will be heard from many who return from Paris. It touches upon the difficulties, too, which he labors under who is anxious to make his report of the exposition more than a tedious paraphrase of the scanty official catalogue. The first and the lasting impression concerning the Paris Exposition is its stupendous and bewildering magnitude. France preponderates even more than the United States did at Philadelphia, giving to the whole a characteristic grace. Add a touch of the cheap

country fair in some parts of the grounds and a faint idea is obtained of the effect it has upon the visitor.

The French have made Herculean efforts individually and as a nation to make it a grand success. Masters as they are of giving everything they produce a graceful form, from the smallest knick-knack to the greatest buildings; with their artistic instincts in grouping and blending color, they have succeeded in overcoming as much as it is possible the difficulties of making attractive a series of temporary buildings. The contrast between the French exhibition in this respect and those garish structures housing our many local shows is uncomfortably striking for an American. We are improving rapidly, it is true, but we have very much to learn in this respect both in small and in great things. Good taste can only be developed gradually, but it is necessary that violations of it, of which we are only too often guilty, should be frankly and freely condemned. This applies as well to the manner of fitting up individual exhibits.

One of the American exhibitors told your correspondent that to him the greatest lesson of the Paris Exposition was to pay closer attention to the manner in which he showed his manufactures. We are not likely to go to the Parisian extreme of putting our entire stock of goods into the shop-window, but we must certainly aim to equal them in their admirable way of making the best and most attractive show of what they have. Standing in the American section of Machinery Hall at one point there were half a dozen efforts at decoration which simply hurt the eye. Frightful combinations of color and of outline, an air of cheap tawdriness prejudiced the beholder against the exhibitors' goods. On the other hand, there is hardly a point in the French sections where pleasing grouping cannot be noted, and in a number of cases there are artistic creations with articles which would seem to defy all efforts at effective grouping. Your correspondent is well aware of the fact that some of our progressive manufacturers are acting up to a full appreciation of the money value of good taste in the form and finish of their goods. But as yet they are exceptions. To an American the greatest good to be obtained from a visit to the Paris Exposition is the keen sense of our inferiority in this respect which he is sure to take home with him. Your correspondent has spoken to many who came to learn whether and in what respect other European nations, and particularly France, had progressed more rapidly than they in their own departments of manufacture. In machinery, iron and steel and hardware your correspondent has not met one who did not frankly state, after a thoughtful and unprejudiced survey of his own field, that in quality of product, in adaptation to its purpose, in ingenuity of design we have little to learn; that, in fact, in many lines we are decidedly ahead. But when the artist and the manufacturer should go hand in hand, when the article made is their joint product, then we have a good deal to learn. That we possess the capacity to make and that there is with us the appreciation of and the ability to purchase goods of the highest artistic merit is clearly shown by the unrivaled position which some of our jewelers and silversmiths occupy. It is evident that we are on the threshold of wonderful development in this direction. Violations of good taste are likely in the future to come home more quickly and more severely to those who have perpetrated them than they have done in the past.

The experience with the Paris Exposition has been very much like that of Philadelphia, in appearing to have wonderful attraction for the great mass of the people. Just as our own farmers, mechanics, workmen and shopkeepers flocked to Philadelphia in 1876, the small people in France seem irresistibly drawn to Paris. They come, whole families of them, entire villages and townships taking advantage of cheap rates to make the journey which is to prove the one great event of their lives. They may be observed taking a hasty luncheon which they have brought with them; they may be seen roaming about tired to the point of exhaustion, but bound to make the most of what little time their slender purses allow them. It is clear that in the aggregate the greatest good done by exhibitions is their influence upon such people. It is true that they do not return home with any great mass of information in their note-books or stored in their memory. The majority could probably not express in a definite intelligent manner the impressions received. But in a vague way new worlds have been opened to them, they have obtained loftier standards, they have acquired greater conceptions of magnitude. Leading narrow lives as they do, they are brought face to face with a world of wonders which have become familiar—almost commonplace—matters to the smaller number who travel much and study progress more closely. They might see a good deal in any great city at any time, but an international exhibition always furnishes the one pretext which is otherwise missing. Its influence upon this class, constituting as it does the great majority of every people, cannot well be measured and is always under-estimated. It creates a desire for better surroundings. It stimulates ambition, develops good taste, and leads to more earnest and better work. It has become the fashion to speak disparingly of exhibitions. It is urged that they are being overdone, that there are too many of them. From an exhibitor's stand-point that may be a debatable question, into which we do not propose to enter, but from the point of view of those who consider the influence of exhibitions upon the mass of the people their creation is well worth great sacrifices. In that light the matter is too little understood and imperfectly appreciated by those who hold the reins of power. The press, legislative bodies and government administrations rarely regard the subject from this stand-point. Its beneficiaries have few and feeble advocates. The result is that the state is rarely willing to invest any considerable sums in this manner, and the burden generally rests upon local authorities, individuals and manufacturers. The general idea seems to be that those should pay the cost who are the greatest gainers, while after all the state as the representative of all is indirectly and inconspicuously by far the greatest beneficiary. We are inclined to believe that manufacturers generally, with few exceptions, pay far more for mounting and securing attendance for their displays than they get a return for. Unless they are actuated by patriotic pride or trade rivalry they will show more and more disinclination to respond to a call to take part. The entire basis of participation in cost must be readjusted before any attempt is made to follow with another world's exhibition. Since it has been talked of in America for a few years an early discussion of some of the points raised is not out of place.

Another danger which is besetting the future of great exhibitions in their magnitude. An enormous mass of material, good bad and indifferent, is accumulated. Little or no discrimination is shown. It would appear judicious if some means could be devised to do so to draw the lines much closer by having the objects to be exhibited undergo some preliminary examination. This could serve as a great encouragement to the best to participate, and would render the whole more manageable both to those who arrange the exhibition and those who visit it. If there is any criticism to make in regard to the Paris Exposition, objections based on this very point seem most justified.

The best and only adequate method of conveying to the readers of *The Iron Age* a clear idea of the great show would be to present to them a series of, say, 100 pictures. Photographs or reproductions of them lack the color and the animation which constitute so great a charm. The vivid word-painting of a master might conjure up some faint images, but your correspondent must be content to offer only in a sketchy manner a survey of the buildings and their contents, reserving for himself a more detailed account of the exhibits in which his readers are more particularly interested. The general plan published in *The Iron Age* in May last gives a portion of the principal buildings of the Champ de Mars. In reality the Trocadéro, on the other side of the Seine, is the natural gateway to the exposition of which it forms a part. That palace, built originally for the 1878 exposition, with its central rotunda and its two lower semicircular wings, occupies an elevated position. The space between it and the Seine is occupied by gardens and a broad series of cascades, an attractive picture in itself, and a splendid point of view of the great Eiffel Tower and the group of buildings on both sides and back of it, on the Champ de Mars, on the opposite bank of the Seine, with the Pont de Iéna connecting both shores. The Trocadéro, however, with its gardens, contains only horticultural, forestry and kindred exhibits, and besides is not as conveniently reached from the greater part of the city as other entrances. Crossing the broad Iéna bridge we reach the Champ de Mars proper. Squarely in front of it, like an enormous gateway to the main buildings beyond, whose central parts it seems to inclose like a frame with its great arches, stands the Eiffel Tower. The center of the picture is occupied by a great dome, the greater part of it gilt and bright with color, flanked and backed by lateral buildings, beyond which rises finally, broadside, the great glass arch of the Machinery Hall. Between the Eiffel Tower and the central dome is an open space, bright with flowers, a series of fountains and statuary, the famous luminous fountains which attract such crowds in the evening. The only buildings within this interior square are the two pavilions of the city of Paris. The other two sides of the square are occupied by long handsome structures, each surmounted in its center by a brilliant dome. The one to the left is the Palace of Fine Arts, the one to the right the Palace of Liberal Arts. The semicircle between the base of the tower and the end of the Palace of Liberal Arts on its right side is chiefly occupied by a group of detached structures, the majority of which were erected by different republics of Central and South America. Similarly there is a group of buildings between the Eiffel Tower and the end of the Palace of Fine Arts, on the left. Among them may be noted Folies-Parisiennes Theater, a Norwegian *chalet*, the Monaco building, the structure of the gas company, another of the telephone company. Along the water side of the Palace of Fine Arts are strung a series of buildings, among which are the Pavillon des Aquarellistes, the Press building, the Electrical pavilion, the Kiosque Dillemont, devoted to ancient embroideries, the building of the Forges du Nord, of the Mariemont and Bascoup collieries, the Compagnie de l'Horme, the Cail Company, the associated diamond companies of the Cape of Good Hope, &c. On the other side along the Palace of Liberal Arts are the Indian Palace, the Chinese Pavilion and the Morocco building, followed finally by a lane imitating as closely

as possible an old street in Cairo, with its booths, its artisans and its quaint buildings.

The main buildings, as already stated, are entered by a portal admitting to the central dome 200 feet in hight and nearly 100 feet in diameter, profusely and richly decorated. Squarely through the main building runs a great galllery over 600 feet long and nearly 100 feet wide, to the great Machinery Hall, back of the main buildings, and like them running at right angles to the center line of the Champ de Mars. The main buildings are a series of seven bays extending laterally from the great gallery on either side. Practically, they roof over in one area a space of 1344 feet long and 626 feet wide. They have wings connecting them with the Palaces of Liberal and Fine Arts of 403 x 344 feet.

Then comes the Machinery Hall, the most wonderful of all the buildings, consisting as it does of one great nave of 375 feet clear span, nearly 1400 feet long, there being on each side galleries nearly 60 feet wide. Covered entirely with glass, with little attempt at decoration except large stained glass designs at the ends, this wonderful hall impresses even the untutored observer as a great triumph of engineering. Back of the Machinery Hall are placed in a long line the boilers of different type which furnish steam for the engines driving the machinery.

Returning to the Eiffel Tower, we find beginning near it and stretched along the Seine a series of curious small buildings of different forms, which are intended to illustrate the history of human habitation. Folllowing along the Seine are a group of structures leading as far as the Esplanade des Invalides, the majority of them devoted to agriculture, vinticulture and allied industries. The Esplanade des Invalides itself, a square about 1400 feet long by 600 feet wide, has been converted into an annex of the exposition. Along one side are a group of buildings in imitation of or in-indication of different oriental countries and the French colonies and protectorates. Algeria and Tunis are represented by Moorish edifices; Annam and Tonkin by hideous, cheap-looking structures. Senegal and Madagascar have native villiages. The Congo, New Caledonia, Cochin China, Gambodge, Java and Sumatra all are represented. Some of the buildings contain exhibitions of natural products of very great interest and merit. Others are mere booths, where the cheapest of cheap knicknacks, food and tobacco is offered with oriental persistency by men and women, the majority of whom glory in a Parisian accent. It is somewhat surprising that this element, which is prominent also in the Cairo street, should be allowed to carry on its petty traffic. On the other side of the Esplanade des Invalides is a series of quite handsome buildings, among them notably that of the Ministry of War.

Is Pennsylvania Losing Her Leadership?

We take the following extracts from a paper contributed by James M. Swank to the report on the mineral resources of the United States, made in 1889 by David T. Day, Chief of the Division of Mining Statistics, in which is discussed the question as to whether Pennsylvania is losing her leadership in the manufacture of iron and steel:

The two leading and controlling iron and steel products of this country are pig-iron and Bessemer steel; they form the foundation of nearly all our finished iron and steel products. Fortunate is the State which can economically make both pig-iron and Bessemer steel, for it can then economically make in great variety the finished iron and steel products which are derived from them. To show the growth and present position of the manufacture of both these leading products in various sections of the country the statistics are taken of their production by States and sections, the figures relating to pig-iron commencing with 1880 and those relating to Bessemer steel commencing with 1874. It was in 1879 that our pig-iron industry took a fresh start after a long period of depression, and it was after 1874 that the statistics of our production of Bessemer steel by States were first published, since which time this industry has had a rapid growth.

PIG-IRON

Unitedly New England, New York and New Jersey now produce much less pig-iron than formerly. Pennsylvania increased her production of pig-iron from 2,083,121 net tons in 1880 to 3,589,186 tons in 1888, a gain of 1,506,065 tons, or 72 per cent. Her production in 1887 was even larger than in 1888. The growth of the pig-iron industry of Pennsylvania was of a most aggressive character from 1880 to 1885, and it has since been phenomenal in its magnitude.

The six Western States have increased their production of pig-iron from 1,194,084 net tons in 1880 to 2,119,456 tons in 1888, a gain of 925,372 tons, or 77 per cent. This is a greater percentage of increase than that of Pennsylvania, which was 72 per cent., but the increase in the quantity of pig-iron produced was 580.693 tons less than the increase of Pennsylvania. Almost the entire gain in production in the Western States in the last decade has been made since 1885.

The nine Southern States have increased their production of pig-iron from 397,301 net tons in 1880 to 1,132,858 tons in 1888, a gain of 735,557 tons, or 185 per cent. This percentage is nearly two and a half times as large as that of the Western States and more than two and a half times as large as that of Pennsylvania, but the increase in the quantity of pig-iron produced by the Southern States from 1880 to 1888 was 189,815 tons less than that of the Western States and 17,475 tons less than half the increase of Pennsylvania in the same period.

The comparisons above given, while indicating rapid progress in recent years in the manufacture of pig-iron in the West and South, do not show that Pennsylvania is losing her leadership as a pig-iron producer. This conclusion is corroborated by the following statement of Pennsylvania's percentage of the total production of pig-iron in the United States in the last nine years:

Years.	Pig-iron. Net tons of 2000 pounds.			Percentage of Pennsylvania.
	Pennsylvania.	Other States.	Total.	
1880	2,083,121	2,212,293	4,295,414	48 4
1881	2,190,786	2,450,778	4,641,564	47.1
1882	2,449,256	2,728,866	5,178,122	47.3
1883	2,638,891	2,508,081	5,146,972	51.2
1884	2,385,402	2,204,211	4,589,613	51.9
1885	2,445,496	2,084,373	4,529,869	53 9
1886	3,293,289	3,072,039	6,365,328	51.7
1887	3,684,618	3,502,588	7,187,206	51.2
1888	3,589,186	3,679,321	7,268,507	49.3

It will be seen that Pennsylvania's percentage of the total production was greater in 1888 than in 1880 or in either of the two following years. Enthusiasts outside of Pennsylvania will call attention to the greater percentage of growth in the West, and particularly in the South, since 1880 than in Pennsylvania, and ask whether these figures do not foretell a material decline in the percentage of her pig-iron production as it existed in 1888. They will call attention particularly to the decline in her percentage from 1885 to 1888. But it is apparent from the foregoing figures that Pennsylvania can loose a little of her percentage from year to year and still remain for many years to come the dominant leader of all the sections in the manufacture of pig-iron.

Representations of the pig-iron industry of any section of the country which are based on the percentage of its growth from year to year as compared with the percentage of growth of some other section are misleading. The true test of progress is to be found in the quantity of pig-iron which the sections compared respectively produce. From 1880 to 1888 the increase in the quantity of pig-iron produced by Pennsylvania was 580,693 tons greater than the increased production of the six Western States in the same period, and it was 373,207 tons greater than the total production of pig-iron by the nine Southern States in 1888.

STEEL.

We now turn to the second leading product, Bessemer steel. The following table shows the production of Bessemer steel ingots in Pennsylvania and in other States from 1874 to 1888:

Years.	Bessemer steel ingots. Net tons of 2,000 pounds.				Percentage of Pennsylvania.
	Pennsylvania.	Illinois	Other States.	Total.	
1874	87,625	62,492	43,816	191,933	44.6
1875	148,374	136,356	90,787	375,517	39.5
1876	258,452	171,933	95,581	525,966	49.1
1877	328,599	111,299	120,689	560,587	58.6
1878	426,481	179,500	126,245	732,226	58.2
1879	514,165	250,980	163,827	928,972	55.3
1880	643,894	304,614	254,665	1,203,173	53.5
1881	844,501	375,763	318,893	1,539,157	54.8
1882	933,631	397,436	365,383	1,696,450	55.0
1883	1,044,396	273,325	336,906	1,654,627	63.1
1884	1,031,484	339,068	170,043	1,540,595	66.9
1885	1,109,039	366,659	226,064	1,701,762	65.1
1886	1,507,577	535,602	498,314	2,541,493	59.3
1887	1,752,445	857,513	678,399	3,288,357	53.2
1888	1,592,629	620,856	599,015	2,812,500	56.6

This table shows that since 1877 Pennsylvania has annually produced more than one-half of the Bessemer steel that has been made in the United States, and that the competition of no other State has seriously weakened her position as the great leader in our Bessemer steel industry, rapid and gratifying as has been the progress of Illinois and of some other States. It will be noted, however, that Pennsylvania made a larger percentage of the total production of Bessemer steel in 1884 and 1885 than in any succeeding year. But this decline in her percentage still leaves her leadership secure. Here, again, as in the production of pig-iron, it is not the comparative percentage of growth which is significant, but the quantity of Bessemer steel that is annually produced. In the statistics of pig-iron and Bessemer steel above presented, we have referred only to those leading products in the manufacture of which other sections of the country as well as Pennsylvania are prominent. In the manufacture of open-hearth steel and crucible steel she makes annually a larger proportion of the country's total production than she does of either pig-iron or Bessemer steel.

Looking at the question before us from a statistical stand-point, and without considering either the advantages or disadvantages of competing sections, we conclude that Pennsylvania is not losing her leadership in the manufacture of iron and steel. She has steadily maintained her position as the leading producer of pig-iron and all kinds of steel, and pre-eminence in the supply of these foundation products, joined to her great advantage in the possession of a variety of excellent fuel, has enabled her to keep far in advance of all competition in the manufacture of finished iron and steel products. Southern competition in the manufacture of pig-iron and Western competition in the manu-

facture of Bessemer steel may narrow the markets for her finished products, but a large part of the country will still supply her with willing customers for these products, while the market within her own borders for all forms of iron and steel cannot be seriously invaded by domestic competition from any section. The only competition in her own iron market that now confronts her manufacturers is that of Southern pig-iron, and this is not to be lightly regarded, but this competition can only take place in the Eastern part of the State, where many blast-furnace plants are of antiquated pattern, and even here the use of cheaper and better ores, both foreign and domestic, is annually reducing the cost of production. Lower freight rates and cheaper fuel will also be insisted upon by the pig-iron manufacturers of Eastern Pennsylvania before they will permanently blow out their furnaces.

THE WEEK.

An Ottawa dispatch says a Government return just issued shows that the debt of the Dominion has reached the enormous figure of $285,778,656, or $56 per head of population, at which it stood on the 1st of July. As compared with 1879 the debt has been increased 55 per cent.; with 1869, 154 per cent. This probably is without parallel in the history of any new country, an increase of 154 per cent. in 20 years. In 1869 Canada owed England $75,847,175; in 1879, $128,307,405, increasing in 1889 to $188,713,935. During the past year $12,112,160 has been added to the Dominion debt payable in London.

The rainfall in New York in July amounted to 9½ inches, the largest total for any July since the Signal Service station was established in this city.

An immense amount of sugar machinery is being erected in Louisiana this year, under the stimulus of higher prices.

The Railroad Commissioners of Nebraska have ordered a reduction in the rate on coal. New rates are 40 to 55 per cent. under old rates. For instance, the rate per ton for 400 miles was $6.20; it is ordered reduced to $2.70 per ton. The rate per ton for 100 miles was $2; it is now made $1.20. Rates are to be made within 30 days, or roads must show cause.

Floods in all directions have recently interfered with manufacturing operations, and in some instances have caused a temporary suspension of work. The Pencoyd Iron Works, in Philadelphia, were flooded. The De Witt Wire Works, in Belleville, N. J., could be approached only by boats and rafts. All the factories on the Raritan River, in New Brunswick, were shut down. At Danville, Va., all the foundries and machine-shops were submerged, and considerable losses have been sustained in damaged machinery and stock.

The selection of a site for the World's Fair at New York is already a fruitful source of contention. The list of particular spots recommended comprises the following: Central Park, Van Cortlandt Park, Pelham Bay Park, Crotona Park, Claremont and Fleetwood parks combined, Inwood, Dykeman's Meadows, High Bridge Park, Washington Heights, Port Morris, Riker's Island, Riverside and Morningside parks combined, Governor's Island, Staten Island, Bergen Heights and Long Island City.

The canal shipments of flour and grain from Buffalo since the opening of navigation comprise 15,351,000 bushels, compared with 13,250,000 for the corresponding season in 1888.

A syndicate of 13 men, mostly belonging to Chicago, have signed a contract for building a pipe line for natural gas to enter that city from the Indiana fields and to be completed November 1. Two 8-inch pipes will deliver 40,000,000 feet daily.

The three local mining companies engaged in taking ore from the hills at Lake Angeline, in Northern Michigan, have demonstrated by borings the fact that large deposits of iron ore lie beneath the lake, which will probably be drained. The Cleveland Iron Mining Company are already driving tunnels under the water. One boring showed 106 feet of ore.

Bids have been opened at the Bureau of Ordnance, War Department, for furnishing the castings and forgings for a 10-inch steel rifle. There were three bidders, as follows: Midvale Steel Works, Philadelphia; Bethlehem Iron Works, Bethlehem, Pa.; Standard Steel and Casting Company, Thurlow, Pa. There has been no award made. Only one bid was received for furnishing 100 7-inch and 100 11-inch steel shells, that of the Standard Steel and Casting Company, Thurlow, Pa., as follows: Seven-inch shells, $66.85 each; 11-inch shells, $135 each. No award has been made.

Emigration to the Hawaiian Islands from Japan is to be suspended for a while, the demand for immigrants there having for the present ceased. Several thousands have been sent from Japan to cultivate sugar-cane.

The chief engineer says the new New York aqueduct cannot be finished before June 1, 1890.

The Cambria Iron Company's pay-roll for two weeks aggregated $95,000 and the Gautier Company's $54,000. Of the 5000 employees of the Cambria Company but 3500 are now at work, and of the 1350 men formerly employed at the Gautier Works but 950 are reported living.

The Globe Iron Works, at Cleveland, have just launched another steel steamer, which cost $150,000, and on the blocks will be laid immediately the first of four boats for the Minnesota Iron Company.

Port Jervis, N. Y., is expected to become an important coal terminus for a new railroad, about 90 miles in length, from Luzerne County, Pennsylvania, the heart of the Lackawanna coal region. The property and franchises of the bankrupt Lehigh and Eastern Railroad Company have passed into the possession of a new organization, in which are Silas W. Newberger, of New York, and Samuel Pierson, of Philadelphia, by whom the enterprise is to be pushed forward to completion.

Another remarkably quick trip across the Atlantic has been made by the new Inman steamship City of Paris, her latest achievement being only three minutes behind her best, when she broke the record for Western runs. The ship left Queenstown at 1.40 p.m. Thursday, July 25, and reached Sandy Hook at 8.14 a.m. Wednesday, July 31. This makes the time of passage 5 days, 23 hours and 10 minutes, as against her best westward run of 5 days, 23 hours and 7 minutes, made in May last.

Seattle, Ore., has appropriated $1,000,000 for a system of water-works.

The Cotton Seed Oil Trust is waning in strength. Reports now published show that the number of mills outside of the trust exceeds the number included in the organization.

Agents of English syndicates are said to be more numerous at the Mexican capital than ever before, seeking to get control of all profitable undertakings. It is commonly said there that the Americans are losing their grip, and that the German merchants have now less to fear from American than from English and French competition. The English railway projects in the four most southern States of Mexico will require a total capital of $40,000,000 and it is probable that the entire drainage-work will pass into the hands of English contractors.

All the nations interested in the three Americas commercial congress, to be held in Washington next October, have signified their intention to be represented except Paraguay, Hayti and San Domingo.

Advices from Kansas City directly contradict the report of a business collapse recently circulated. So far from this, the clearing-house returns for July show an excess of 17 per cent. compared with last year, and the building permits for the month were in excess of $1,000,000. Another year of prosperity is guaranteed by the abundant crops in the State, computed to be worth $90,000,000.

The State Department at Washington intends to make a serious effort to secure the repeal of the stringent German and French legislation against American hog products. The movement hostile to these products was originally based on the pretence that there was danger in their use, on account of the prevalence of trichina. This charge being refuted, prejudice was excited by exaggerated statements based on defective inspection. And in reference to alleged lard adulteration has formed a fruitful theme, the object in each instance being to exclude American products in the interest of domestic husbandry. The result is that while American export trade has suffered consumers in Europe are made the victims of extortionate prices. France and Germany are the chief offenders in raising barriers between the producer and consumer, to the detriment of both, with no corresponding advantage on the one side or the other.

The Grand Boulevard in this city, extending from Fifty-ninth street to 155th, a distance of five miles, is one of the most expensive streets in the world. It is 150 feet in breadth with two carriage-ways, sidewalks, a central grass plot and four rows of trees. The cost of the land taken for this purpose was in part paid by the city and in part by the holders of property as follows, with the dates of the acts authorizing its purchase:

	Paid by city.	By property owners.	Totals.
June 15, 1868—Boulevard	$1,880,698	$1,727,218	$3,607,916
August 2, 1872—Riverside Park	3,069,481	3,104,479	6,163,960
June 28, 1870—Morningside Park	823,499	896,693	1,720,192
The cost to the city for grading, paving, &c., was			$1,249,310.86
The cost to property owners for the same was			1,249,310.86
The total was			$2,498,621.71

Or nearly $500,000 a mile and the land $1,200,000 a mile. And yet complaint is made that it is a positive depreciation to property, and so dirty and dusty that no one will live on it nor near it, and every one is discouraged who thinks of building on it.

The announcement is made that the Royal Mail Steam Packet Company, of London, intend running a line from New York to South American ports, and that it will connect at Barbadoes with the West Indian and Colombian lines. The new line will probably begin running in October.

The President of Guatemala, in receiving the new United States Minister, Mr. Abbott, emphasized the fact that it is the earnest desire of the Government to maintain unbroken the cordial relations now existing between the two countries, and said that the Government would do its utmost to strengthen the ties and promote common interests.

MANUFACTURING.

Iron and Steel.

The Bethlehem Iron Company, of Bethlehem, Pa., have advanced the wages of their puddlers from $3.25 to $3.80 per day, and the pay of the men at work on dephosphorized iron has been increased proportionately. The new scale went into effect on the 1st inst.

The nail factories of the Kelly Nail and Iron Company and the Beltont Iron Works Company, at Ironton, Ohio, are both idle, with no immediate prospects of resumption.

About 100 employees of the Beaver Falls Mills of Carnegie, Phipps & Co., Limited, at Beaver Falls, Pa., have recently joined the Amalgamated Association, and it is probable that the scale of that organization will shortly be presented to the firm for their signature. The plant has heretofore been operated on a non-union basis.

William Hainsworth, for some years superintendent of the Pittsburgh Steel Casting Company, at Pittsburgh, has located in Seattle, Wash. Ter., in company with a number of other parties from that city. Mr. Hainsworth has organized a company to engage in the manufacture of steel castings and a plant is now being erected.

The Apollo Foundry Company, of Apollo, Pa., were granted a charter last week, with a capital stock of $20,000.

The Victoria Furnace, at Goshen, Rockbridge County, Va., after a successful trial blast, was put in blast regularly and is now giving entire satisfaction. It is under the management of Chamberlain, Wheeler & Co., who are operating it under a five-years' lease.

At Pittsburgh last week the Cherry Valley Iron Works, Leetonia, Ohio, and A. Wilson & Co. filed exceptions to the final account of John H. Bailey, assignee of Graff, Bennett & Co. The first-named firm were creditors of the company to the extent of $869.04 and Wilson & Co. for $2954.59. They state that a few of the larger creditors conspired to have the assets of the company administered for their particular benefit. The court is asked to order Bailey, the assignee, to account for the fair and just value of the assets of the firm disposed of by him to the combination.

The puddling department of the plant of the Benwood Iron Works, at Wheeling, W. Va., which has been idle for some time, has again resumed operations, with good prospects for a steady run.

The plant of the United States Iron and Tin Plate Co., Limited, at Demmler, Pa., which has been idle for the past two months, undergoing repairs, resumed operations on Monday, the 5th inst. The firm have just completed the erection of a 44-inch plate-mill, which has also been put in operation.

The King Iron Bridge Company, of Cleveland, Ohio, have been awarded the contract for building an iron bridge over Smith River at Leaksville, N. C.

A fly-wheel on a Corliss engine at the Illingsworth Steel Works, in Harrison, N. J., burst last week, and a piece weighing 2½ tons was hurled through the roof, making a hole 25 feet square and tearing out several of the steel girders. The broken segment of the wheel was shattered when it struck the roof girders, and some of the fragments flew 100 yards away. None of the workmen were hurt.

The Talladega Iron and Steel Company, Limited, of Talladega, Ala., have now completed their furnace, and our last advices from the company stated that it would be ready to blow in the last week in August. Its size is 18 x 72 feet, and it is equipped with three Ford and Moncur stoves, each 26 x 65 feet. This equipment is claimed to give the furnace more heating power than any other furnace in the South. Its daily capacity is estimated at 150 tons of pig-iron. The nearest coke furnaces to this plant are those of the Woodstock Iron Company, at Anniston, Ala. The Talladega Iron and Steel Company are an English corporation, whose head office is at Rose Hill Hall, Cosely, Staffordshire, England. The telegraphic address of the works is Lancaster, Talladega, Ala.

The Philadelphia *Press* for July 28 contained an interesting illustrated description of the method of manufacturing steel cannon as practiced at the Midvale Steel Works, near that city. Among the guns now in process of construction at the Midvale Works are 22 6-inch guns for cruisers, 27 12-inch mortars for sea-coast defense, 25 field-pieces of about 13 pounds caliber and a 12-inch rifled gun which is an experiment. The first modern cannon made in the United States was a 6-inch gun, in use on the Dolphin, cast at the Midvale Works.

The magnitude of the ordnance department of the Bethlehem Iron Company is indicated by the following statement of the work now in progress: In the way of naval ordnance there are six 4-inch breech-loading rifles building, also two 4-inch rapid-firing guns, and some 80 breech-loading rifles of calibers from 5 to 12 inches inclusive. For the army the works are making some 60 guns of calibers from 8 to 12 inches inclusive. For the navy all the armor of the big barbette battle-ship Puritan and the double-turreted monitors Amphitrite, Monadnock and Terror is being made at these works, as is also the armor plating for the battle-ship Texas and the armored cruiser Maine. The Bethlehem Company are besides furnishing to such firms as the Cramps, the Union Iron Works, of San Francisco, and the Palmer Company, of New York City, shafting and other heavy forgings for the cruisers Newark, Philadelphia and San Francisco and the armored cruiser Maine. The Philadelphia shafting has been delivered and the deliveries for the Newark and San Francisco are nearly completed. Forgings for 4-inch, 6-inch and 8-inch guns have already been delivered some ten months in advance of the contract time.

The mill which Edward Gough, of Allentown, Pa., has contracted to build for the Carpenter Steel Company, of Reading, will be designed to roll crucible-steel rods of all sizes, small shapes of all descriptions, cutlery steel and steel plates. The company will occupy the old Philadelphia and Reading rail-mill. J. H. Carpenter is general manager.

The Ohio Iron and Steel Company, of Louisville, Ohio, write us as follows, under date of July 30: "To-morrow we will stop our Mary Furnace to renew the bosh, finding it is the wisest course always to keep the lines of our furnace in perfect condition, as it enables us to produce a superior quality of iron at a minimum cost. During the year ending July 26 our furnace produced 42,608 tons, of 2268 pounds to the ton, of metal. Sixty-one per cent. of this was strictly No. 1 X Ohio Scotch foundry iron, and 26 per cent. was B 1 and No. 2, making in all 87 per cent. of foundry grades, with only 13 per cent. of No. 3, and not a pound of mottled or white iron during the blast. The above product was used largely by melters who have always been strict adherents to imported Scotch irons, and the wide favor shown our product indicates that our Ohio Scotch, made as per the analysis that you recently published, is a superior article to the foreign product."

The sale has recently been announced of the Jenifer Furnace property of the Clifton Iron Company, in Talladega County, Ala. The price paid was $70,000. The purchasers are William and John W. Noble, who have organized the Jenifer Iron Company, with John W. Noble as president and George Noble as general manager. Jenifer Furnace is a charcoal stack, 10 x 55 feet in size, built in 1873. The Clifton Iron Company are concentrating their works at Ironaton, in the same county, where they have a charcoal furnace, 12 x 55 feet, completed in 1885. They have also commenced work on a new charcoal furnace, to have a capacity of 60 tons per day. Frederick Prime, of Philadelphia, is president of the latter company, and S. N. Noble is superintendent.

The furnace men in the employ of the Carrie Furnace Company, at Rankin Station, Pa., went out on a strike last week for an increase of wages. Both stacks of the firm are banked at present, pending a settlement of the trouble.

The blast-furnace at Topton, Pa., was to have resumed on Monday morning, but was unable to do so, and will have to lie idle for the present on account of the scarcity of coke, caused by the strike in the coke district

The puddlers of Light's Rolling Mill, the Lebanon (Pa.) Iron Company and the West End Rolling Mill on Monday notified their employers that an increase of 35 cents per ton would be expected after August 20. The present rate is $3.50 per ton. Several months ago the puddlers' wages were increased 25 cents. The firms have taken no action on the new demand. Over 500 hands are employed in these mills.

The Moorhead-McCleane Company, proprietors of the Soho Iron and Steel Works, at Pittsburgh, inform us that there is no truth in the report that they are about to commence the erection of a large new armor-plate mill. Some needed repairs will soon be made in the old plate-mill.

The Cleveland City Forge and Iron Company, of Cleveland, Ohio, are now engaged in preparing for the Mare Island Navy Yard, at San Francisco, a set of plate-bending rolls, which are said to be the largest of their kind ever constructed. These rolls are 31 feet long and 36 inches in diameter and weigh a little over 50 tons. The steam crane required to properly handle the work is of 110 tons capacity.

Furnace No. 7 of the Thomas Iron Company, at Lock Ridge, Pa., which has been idle for some months, will be put in blast this month. It is now undergoing necessary repairs.

The Reading (Pa.) *Times* of the 3d inst. says there are at present about 50 men at work in the various departments connected with the Reading Iron Works engaged in clearing up and repairing.

Machinery.

The Baldwin Locomotive Works, of Philadelphia, are putting in a Westinghouse compound engine of 100 horse-power. Having subdivided their power, they now have 11 Westinghouse engines, aggregating 854 horse-power, in different parts of their extensive works.

The Diamond Machine Company, of Providence, R. I., have recently added about 20,000 feet of floor-room to their factory, which they are fitting up with the latest and most improved machinery, so that they may be able to supply the increasing demands of the trade for their grinding and polishing machinery. They are now making large shipments abroad,

the foreign trade showing a greatly increased demand. They have also moved into large new double offices at their factory. Their Chicago office, corner Washington and South Canal streets, is one of the largest and best situated in that city for the sale and display of their machinery, polishers' and nickel-platers' supplies and sundries. They have reports of greatly increased sales from this office, and have been compelled to move into these new quarters to enable them to meet the demands of their Western customers They trust with their greatly increased facilities to be able to fill all orders promptly for their regular line of grinding and polishing machinery, or any special machinery that may be intrusted to them.

The Westinghouse Machine Company, of Pittsburgh, report that the orders received by them for the first 20 days of July amounted to 48 engines, aggregating over 3000 horse-power. Recent orders for their compound engines foot up 27, with a total of 3535 horse-power

The Laidlaw & Dunn Company, of Cincinnati, Ohio, have sold two of their 1,000,000-gailon Standard Duplex Steam-Pumps to the Georgetown, Ky., waterworks. They are now filling orders for six of this capacity.

A large steam-pump, built by the Valley Pump Company, of Easthampton, Mass., for the Easthampton Rubber Thread Company, and which has run night and day on heavy work for nearly 15 years without repairs, met with an accident last Tuesday, which will necesitate putting in a new cross-head. Very few steam-pumps can show a record of 15 years' running night and day without repairs.

Nicholson & Waterman, of Providence, R. I., have received an order for their broaching, facing and stay-bolt threading machines for the new Altoona shops of the Pennsylvania Railroad. The standing of the Pennsylvania Company as a buyer of machinery makes this order specially gratifying to the makers. They have also sold special stay-bolt threaders to the Rogers Locomotive Works and to the Schenectady Locomotive Works.

We have received from the Lincoln Iron Works, of Rutland, Vt., a handsomely-gotten-up catalogue showing their machinery for working and handling stone and marble. The book describes the construction and operation of the Merriman Improved Screw Gang, with both single and double pitman, shows their stone planer and stone-jointing machine, hoisting-engines, steam and horse-power hoisting-machines, and many minor appliances used in the dressing of stone.

An important change has been made in the prices of the well-known Korting injector. A reduced price has been obtained by increasing the capacity. The new style Korting double tube injector, while maintaining same list price as heretofore, has larger capacity than the old style Korting injector. To illustrate: No. 1 size of new style at $23 has same capacity as No. 2 old style at $28, and No. 2 new style at $28 will feed same size boiler as No. 3 old style at $38, and the same comparison exists on all the larger sizes. These injectors are sold by A. Aller, of 109 Liberty street, New York.

Henry W. Peabody & Co., of Boston, Mass., desire to communicate with makers of horseshoe machines.

The Keasey Split Wooden Pulley is now manufactured by the Great Western Pin Company, of Auburndale, Ohio. The pamphlet we have received fully illustrates and explains the construction of this pulley and specifies its superior points. The many testimonials presented show the favor with which this pulley is received. The pamphlet closes with a table giving the diameter, face and price of the many sizes made.

The power plant for the North Adams (Mass.) Electric Railroad, consisting of one single engine and one tandem compound, is being furnished by the Fitchburg (Mass.) Steam Engine Company.

Hardware.

The barbed-wire department of the Braddock Wire Company, at Rankin Station, Pa., was put in operation on Monday, the 5th inst. The rod-mill has also been put in operation. The firm report that they have plenty of orders on hand and expect to run their works to their utmost capacity for some time to come.

Miscellaneous.

The Pennsylvania Railroad Company are receiving bids for an addition of 5000 freight-cars to their rolling stock This improvement to the stock will involve an expense of $3,000,000. A portion of them will be gondola or coal cars, and the rest the ordinary box cars of the standard Pennsylvania Railroad make. It is thought 2000 of them will be used on the lines west of Pittsburgh and the rest on the lines east of that point.

The American Coppee Coke Company, of Pittsburgh, have made application for a charter. The incorporators of the new concern, which will begin operations at once, are R. de Soldenhoff, general manager and chief engineer of Evince Coppee & Co., of Cardiff, Wales; J. L. Penny, Edward Martin, David Evans, C. B. Vaughan, of Pittsburgh, and W. R. Jones, of Braddock. The capital stock of the company will be $100,000. The intention of the new corporation is to erect at once several blocks of ovens—one block near Pittsburgh, another in Alabama and a third at a point not yet selected, probably in Nova Scotia. Among the many advantages claimed for the new oven are that it makes from 3 to 6 per cent. more coke; that its output is 14 tons per week, against 6 from the beehive; that it takes less room; that it can be discharged in three minutes. Each oven will cost $700, or over twice as much as the beehive oven, but it is so constructed that all the gas is burned and helps to produce a better quality of coke at a less expense. The discharge is accomplished by machinery, the coke being pushed through the oven. For this reason the ovens are only economically operated in blocks of 30 or 40. The oven has been in use in Europe for years.

At Pittsburgh last week application was made for a charter for the Terra Cotta Lumber Company, who have among their stockholders some well-known capitalists of that place. The officers are: D. F. Henry, president; Wm. H. Graham, treasurer, and W. D. Henry, secretary. Terra-cotta lumber is considered absolutely fireproof, and is composed simply of sawdust and clay, which, by being passed through the process invented by C. C. Gilman, of Chicago, become a solid substance which can be cut and sawed or used as brick. The company who have been organized in Pittsburgh will be the parent company for the territory within a radius of 100 miles.

J. W. Moore & Co., of Pittsburgh, well-known Connellsville coke operators, have recently purchased 979 acres of coal land a short distance from Uniontown, Pa., adjoining the Wynn coke plant, also owned by the above company. The purchase gives the firm about 1100 acres of good coal land in one body. Work will be commenced at once, and this plant will be made one of the largest in the region. There are now 70 ovens at the Wynn works; 50 more are in course of construction and will be completed in a few weeks. Within a year the plant will be extended to over 500 ovens. With the completion of these works Moore & Co. will own something over 1100 ovens, and besides will be the second largest holder of coal land in the region.

Stearnes Mfg. Company, Chicago, Ill., make a specialty of the Stearnes Patent Dining, Director, Excursion and Emigrant Car Ranges, and have now in hand contracts from the Pullman Palace Car Company and Barney & Smith Car Company. A. J. Stearnes, of the firm, has issued a circular announcing his withdrawal from the firm of Bramhall, Deane & Co., and with him is associated S. W. Joy, formerly of the firm of Joy & Gardener, hardware merchants, of Minneapolis.

The boiler-cleaner built by the Trowbridge Boiler Cleaner Company, of Fond Du Lac, Wis., consists of a chamber so placed that the feed-water passes through it before entering the boiler. In this chamber are placed boiled or steamed potatoes, the action of which on the water will, it is claimed, not only remove the adhering scale, but will prevent scale formation, and will preserve instead of destroying the metal. Many letters are presented in the circular we have received which state that this boiler-cleaner has accomplished all claimed for it. In the arrangements of pipe provision is made so that the chamber can be easily emptied of the old stock of potatoes and a new supply inserted without in any way interfering with the feed-water.

A press dispatch from Scottdale, Pa., says: "The strike in the Connellsville region has assumed immense proportions. Of the 14,000 ovens in the region not less than 12,000 are now idle. The National Progressive Miners' Association and the Knights of Labor are working together in harmony. At a meeting at the Standard works on the 4th inst. the men, who are nearly all National Progressive Miners, unanimously passed a resolution ignoring the scale and agreement of last February. The latest works out are Leisenring Nos. 2 and 3, Jimtown, Calumet, Sterling, Emma, Warden, Pennsville and Moyer. From the latest reports received it is almost certain that not more than eight or ten works out of the 76 in the region will be working long. These, with the exception of the Mammoth, are all small works, and will not represent over 1200 or 1400 men." A special dispatch from Pittsburgh to this office informs us that the coke strike has become general. The principal operators have offered the men an advance of 6¼ per cent. It is thought this will be accepted and work resumed.

Lubricating Car-Axles.—A correspondent writes to the *Railroad Gazette* describing what he terms a cure for hot boxes. The device consists of an oil-cup placed in the journal-box and feeding the oil to the journal through a wick, which can be adjusted to touch the journal by a winding arrangement similar to that of an ordinary lamp. Being adjusted, the wick is securely fastened in position. One box to which this was attached had a record of 6264 miles run to a quart of oil. During that time the brass, which originally weighed 9½ pounds, sustained a loss of only 11 ounces. The oil used was the ordinary black oil, costing 9 cents a gallon. The journal was measured at the time that the brass was weighed, and showed a wear of $\frac{1}{32}$ inch. It had made a long mileage before the device was put in, and therefore it was impossible to compare the amount of wear with that previous to the introduction of the wick device. No attempt was made to exclude dust, the ordinary wooden dust-guard being used.

The Iron Age

New York, Thursday, August 8, 1889.

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Railroad Transportation and Canadian Competition.

The equitable adjustment of rates for freight transportation across the American continent and between intermediate points is the single disturbing factor of any magnitude in business relations at the present time. The completion of the Canadian Pacific transcontinental highway, followed by the enactment of the Interstate Commerce law, introduced forces before unknown, and the question arises, How shall conflicting interests, not only as between American railroads and between the several States, but also as between all these and roads in the Dominion, be harmonized on a permanent basis? The parallel Canadian Pacific, subsidized at the rate of $250,000 per annum for 20 years, becomes a power which it is impossible to ignore. It has come to stay. And as concerns the American roads whose interests conflict, it is obvious that the "short-haul" provisions, so called, of the Interstate Commerce law must not so apply as to render inoperative any endeavors on their part to compete successfully with their common antagonist. It is no less apparent that the framers of the act, by imposing various restrictions such as the prohibition of pooling and of combinations, never contemplated the enactment of a measure that would make impossible a wholesome rivalry such as affords the public the most effective security against exorbitant charges. Neither was any purpose entertained that would passively permit a foreign competitor to throw into confusion and to paralyze the entire transcontinental railway system.

Even a cursory survey of the subject in its length and breadth discloses many entanglements, and it is well, the general Government being already in the arena and fully committed to the policy of interference in railroad management, that a Senate committee was instructed to inquire "whether commerce originating in the United States is diverted from American to Canadian lines, and if so, to what extent and by what means, . . . and to inquire fully into the question of the regulation of the commerce carried on by railroads or water routes between the United States and Canada, and to represent what legislation, if any, is necessary for the protection of the commercial interests of the United States, or to promote the enforcement of the 'act to regulate commerce.'" The deep significance of this inquiry appears in the wide diversity of interests to be reconciled, and especially from the fact that the Dominion, as a party concerned, has no authority to act in any final adjustment independently of the Imperial Government. Another consideration, and one that came as a surprise to the Senate committee in its investigations at Boston and Chicago, if not to the American people at large, is the fact that the East and the West respectively cherish separate interests which they conceive to be of controlling importance. Not only this, but to a very large degree these interests are identical with those of the Canadian Pacific.

In the New England States, equally with the West, the feeling expressed on various occasions was unanimously in favor of Canadian competition, which, it was alleged, has brought about lower rates, with great resulting advantages. One consequence is that New England manufacturers have received a new impetus, a large portion of the shipments of manufactured cottons, for instance, being by the Canadian route to China. Resolutions submitted to the Senate committee by the Chicago Board of Trade in like manner took ground that the Canadian lines were all that held the American roads to anything like fair dealing; that these lines had been the pioneers in the dressed-beef trade with the sea-board and were among the first to introduce transfer elevators for preserving the identity of grain, &c., thus winning a large share of business from the West. Goods in bond, they strenuously insisted, should pass over the commercial highways of Canada untrameled. In a word, Boston and Chicago demand that inasmuch as the Canadian lines offer facilities such as were never before enjoyed, they should not be embarrassed by needless restrictions. Still more emphatic is the language of ex-Governor Smith, of Vermont, in his statement before the committee that a system of restriction such as the proposed bonding of Canadian cars at the boundary would be disastrous. It will be a relief to all sharing in these apprehensions to know that Secretary Windom, August 3d, rendered his decision that in accordance with existing statutes foreign railway cars engaged in international traffic are to be treated as "if the transportation had taken place entirely within the limits of the United States."

As the general question of freight transportation now stands, there are engaged in its attempted solution three organizations —viz.: the committees of Congress, the Interstate Commerce Commission and the Treasury authorities. Probably the most significant utterance thus far bearing on the final settlement is that of Judge Walker, who recently resigned from the Interstate Commerce Commission, in which he says: "It apparently would not be unjust for our Government to require from Canadian lines which are employed in conducting commerce between the different States of the Union an engagement with the United States Government in some effectual form, and if necessary under the sanction of a treaty, providing that the entire traffic of the roads composing the several routes so used shall be conducted in accordance with all the provisions of the act to regulate commerce, adding suitable arrangements for the service of process and the enforcement and collection of penalties. In other words, all that is required would seem to be some provision which should put *the Canadian roads upon an exact parity with our own.*" In other words, it may be added, negotiation is preferable to retaliation. And in the general retrospect, so far as Canadian relations are concerned, the question becomes pertinent whether the restoration of the reciprocity treaty, or an acceptable modification of it, would not open the shortest way out of the profound muddle into which railway managers and astute Congressmen alike have floundered.

Late Developments in Cuba.

After ten years of a vain, ruinous struggle for independence, involving a loss of life of 300,000 men and a loss of property of $500,000,000, Cuba entered upon a period of slow recuperation, lasting as long, and only now revives to prosperity upon a basis promising to be permanent. The last five years were to a great extent devoted to overcoming the disorganization of field labor, caused by the abolition of slavery; this task has been facilitated by the transformation of the cane-sugar industry. The United States consuming about 75 per cent. of all the sugar and molasses Cuba has produced for half a century past, a change in the raw sugar we consume by refining it called for a thorough revolution of machinery, and our machinists have largely and cleverly cooperated in the change of methods. Even the duties we levy have exercised a powerful influence in determining the latter. Prior to the Cuban rebellion Cuba turned out chiefly clayed sugar in boxes for our refineries and grocery muscovadoes, which we largely consumed without refining them, while the lower grades were refined. Importers then discovered that under our duties sugar made by the centrifugal process would pay them better to sell to refineries than clayed, and centrifugal machinery was introduced in Cuba on a larger scale; our refineries at the same time began to make soft yellow sugars, superseding the raw grocery kinds. The area under cane cultivation was at that time, in 1867, about the same as at present, distributed among 1000 plantations, large and small. During the rebellion many plantations were burned down, and with them year after year a vast expanse of standing cane. It was then deemed advisable to more concentrate the industry. Central sugar-houses were erected, partially by companies, and they began to buy the canes by weight from the smaller estates near at hand, instead of growing them themselves. Furnished with magnificent new machinery, mostly made in this country, and employing the best modern methods, sugar was thus produced not only cheaper but better, also more rapidly, during the grinding season. The planters thus became more independent of the black field labor, and later on it became easier to deal with the slavery-abolition problem. Still, as the price of sugar kept low in the world's markets, and as the taxes under which planters groaned were heavy, the period of recuperation was necessarily a protracted one.

Fortunately better times at length smiled upon the heroic planters who had not wavered during those 20 years of endless tribulations, sugar gradually rose in United States markets during the past 18 months and the industry has become profitable once more. The better price has indemnified the planters for the somewhat reduced crop. They were, however, not exempt from trouble, as kidnapping for a big ransom and brigandage flourished, an outgrowth of the rebellion

and abolition, and it was only since the iron rule of the last two Captains-General, Sabas Marin and Salamanca, that crimes of the kind were severely repressed and punished. The fiscal administration of Cuba was also bad enough. Smuggling and a system of robbery by custom-house officials, high and low, kept down the income of the island, while the outlay was always about $25,000,000, thus perpetuating deficits. Captain-General Sabas Marin commenced to radically weed out these dishonest practices, but the enmities he provoked were too much for him, and he became discouraged and resigned last spring and was succeeded by General Salamanca, who has continued the process, and the progress made by him in repressing brigandage and getting more money out of the customs has been wonderful. Yet the finances of Cuba cannot be restored to a good footing in a day nor in a year, for their backwardness dates from the rebellion. The paper money has to be withdrawn in order to do away with the irritating gold premium, and this is not an easy matter, in which the home Government and insular financiers have to co-operate. As, however, it has to be done, the sooner the better, this monetary problem will next have to be grappled with. With renascent Cuban prosperity it is not as formidable any more as it was while Cuba was impoverished and in a state of chronic semi-anarchy.

The business connections between Cuba and the United States are so vast and intimate that it pays American merchants and manufacturers well to see Cubain a flourishing condition once more, and the new era now commenced is to them of the utmost importance; hence Cuban developments have perhaps at no previous time elicited as lively an interest among us as at present. American capital is being largely invested at present in the formation of powerful syndicates to run new central sugar-houses, in iron-ore mining near Santiago and in many other ways. The railroad sytem has to be completed, water-works and many municipal reforms to be carried out. Our machinists will have their hands full to build all the new machinery that a vigorous extension of sugar production will necessitate. Sugar may not long remain as high as at present; still it may take years to bring it down once more as low as it has been, and the new methods get more sugar out of the canes, and more economically; hence, once started, the Cuban revival may not experience a severe check for several years. Meanwhile we have to deal with well-to-do planters instead of financially broken-down ones, which makes a vast difference.

The new sugar crop in Cuba promises well, and so does the tobacco crop. Of the latter we take the bulk shipped in the leaf. The American trade with Cuba presents the following items:

	Import.	Domestic export.
1888	$50,208,414	$10,690,400
1887	45,393,447	9,145,834
Increase	$4,814,967	$1,844,666
	or 11 per cent.	or 20 per cent.

In this connection it should be mentioned that recently a new feature in the carrying trade has been tentatively introduced. The steamer Shawmut made an experimental trip, towing the hull of the English ship Atlas, to load with some 35,000 bags of sugar at 15 cents per 100 pounds for the United States. If this proves a success it will be repeated, and sailing vessels and smaller steamers will have a strong competition in the carrying trade.

During the year a company was formed at Pensacola, Fla., for the purpose of supplying the Cuban and West Indian coal trade from the Alabama mines. They shipped several cargoes to Havana from Pensacola, and intend operating a line of vessels. The company obtained liberal concessions from the local health authorities and the commissioners of pilotage, and will shortly renew their operations on a scale that promises a large export business.

Our Foreign Trade in Metals.

Some of the details of our foreign trade in the fiscal year 1889 are now available, the preliminary report of the United States Bureau of Statistics having made its appearance. From this report it appears that in the fiscal year ended June 30, 1889, the importations of iron and steel, excluding iron ore, amounted to $42,377,842, against $48,992,757 in the preceding year. This is a reduction of nearly 14 per cent., the falling off occurring principally in steel rails, pig-iron, steel blooms and billets, wire-rods and scrap-iron. In tin-plates, cotton-ties, steel hoops, machinery and cutlery importations have increased. The following tables show the details·

Value of Iron and Steel Imports.

Articles.	1889.	1888.
Pig-iron	$2,860,462	$5,042,886
Scrap-iron	394,904	1,957,135
Scrap-steel	55,432	161,014
Bar-iron	1,135,665	1,219,461
Iron rails	481	5,375
Steel rails	581,109	3,219,212
Cotton-ties, iron and steel	897,762	528,334
Hoop-iron	7,314	295
Steel hoops, sheets and plates	902,456	831,941
Steel blooms, billets and bars	2,460,390	4,442,647
Sheet and plate iron	447,016	531,484
Tin-plates	21,222,656	18,979,344
Wire-rods	2,500,394	3,648,480
Wire and wire rope	638,554	600,988
Anvils, axles and forgings	164,292	182,743
Chains	84,600	97,506
Cutlery	2,362,537	2,210,734
Files, rasps and floats	65,233	64,956
Fire-arms	1,159,147	1,070,685
Machinery	2,445,379	2,079,381
Needles	283,600	316,295
All other	1,708,462	1,801,859
Totals	$42,377,842	$48,992,757

So far as they are stated in the statistical returns the quantities of iron and steel imported were as follows, in gross tons:

Quantities of Iron and Steel Imports.

Articles.	1889. Tons.	1888. Tons.
Pig-iron	183,256	325,517
Scrap-iron	34,217	142,087
Scrap-steel	4,224	13,019
Bar-iron	30,884	33,153
Iron rails	20	225
Steel rails	24,257	136,799
Cotton-ties	32,435	19,061
Hoop-iron	262	9
Steel hoops, sheets and plates	20,868	22,421
Steel blooms, billets and bars	96,264	185,397
Sheet and plate iron	6,885	7,215
Tin-plates	328,454	283,457
Wire-rods	80,451	120,955
Wire and wire rope	3,491	3,172
Anvils, axles and forgings	1,222	1,298
Chains	722	922
Totals	857,912	1,294,707

The quantity of iron ore imported in 1889 was 653,206 tons, valued at $1,507,658, against 919,644 tons in 1888, valued at $1,818,034.

In other metals but few quantities are stated. For the sake of convenience we have grouped them in the following table:

Articles.	Tons. 1889.	Tons. 1888.	Values. 1889.	Values. 1888.
Tin, pig, &c	15,124	14,147	$7,014,495	$8,758,562
Copper ore	2,249	1,944	400,229	291,185
Copper, pig, &c	50	73	7,919	13,569

The coal imported in 1889 amounted to 1,155,829 tons, valued at $3,929,245, against 877,504 tons in 1888, valued at $2,846,741.

In connection with the current discussion of the proper duty on silver-bearing ores the statistics of their importation are of interest. In 1889 the imports were valued at $6,951,719, against $5,115,563 in 1888. Of the total imports in 1889 the value of importations of silver ore into the below-named districts amounted to $6,205,777, or 89 per cent. These importations contained the following quantities of lead admitted free of duty:

	Pounds.
Corpus Christi, Texas	4,520,739
New Orleans, La	2,[illegible]90
New York, N. Y	20,209
Paso del Norte, Texas and New Mexico	36,997,532
Saluria, Texas	14,023,980
Total	55,564,550

Importations of miscellaneous metals and metal products are shown in the following table:

Articles.	Value. 1889.	Value. 1888.
Brass and manufactures of	$183,861	$293,093
Manufactures of copper	74,730	109,326
Metals and bronze manufactures	861,626	878,418
Other metal compositions	2,465,394	2,248,447
Lead and lead manufactures	549,257	661,917
Zinc blocks or pigs	112,179	192,235
Zinc manufactures	54,518	30,289

The exports of iron and steel amounted in value to $21,154,742 in 1889, against $17,763,034 in 1888, showing an increase of nearly 14 per cent. The leading items in this list are machinery, sewing-machines, saws and tools, locks and builders' hardware, locomotives and fire-arms. The details of values are as follows:

Articles.	1889.	1888.
Pig-iron	$228,945	$174,414
Band and hoop iron	1,473	4,152
Bar-iron	48,539	43,433
Car-wheels	74,465	108,882
Castings	369,535	264,492
Cutlery	102,252	115,408
Fire-arms	820,933	593,321
Steel bars	22,968	14,1[illegible]1
Locks and builders' hardware	1,709,390	1,442,635
Machinery	7,166,748	5,519,893
Cut nails	290,807	310,197
Wire nails, including tacks	157,339	155,403
Iron plates and sheets	28,620	198,024
Steel plates and sheets	2,601	6,746
Printing-presses	223,900	186,989
Iron rails	240	2,575
Steel rails	235,377	175,692
Saws and tools	1,980,878	1,659,727
Scales and balances	301,486	325,488
Sewing-machines	2,247,875	2,245,110
Fire-engines	10,175	1,300
Locomotives	1,227,149	407,014
Stationary engines	133,473	197,040
Boilers	267,394	238,726
Stoves and ranges	273,261	263,730
Wire	594,616	466,355
All other iron and steel	2,643,213	2,642,127
Totals	$21,154,742	$17,763,034

Miscellaneous exports of metals and articles into which metals largely enter were as follows:

Articles.	Value. 1889.	Value. 1888.
Horse-powers	$15,974	$4,913
Mowers and reapers	1,187,053	1,463,254
Plows and cultivators	705,262	509,044
Other implements	915,480	667,976
Brass	321,137	308,124
Copper ore	7,518,258	5,064,687
Copper ingots and bars	2,155,576	3,709,406
Copper sheets	5,157	3,321
Other copper	188,221	100,071
Lead	199,802	129,558
Plated-ware	587,163	551,069
Tin manufactures	236,733	219,000
Zinc ore or oxide	25,354	15,976
Zinc pigs and bars	4,872	3,231
Zinc manufactures	23,812	15,370

Copper ingots and bars alone show a decrease in the above list. The increased exports of all the other articles is very gratifying.

Rolling Fluid Metal.

The Ohio Valley *Manufacturer*, published at Wheeling, W. Va., is incredulous regarding the Norton fluid metal rolling process, invented by Norton and Hodgson, of Chicago, and recently illustrated in these columns. An article on the subject, in which the most extravagant ridicule is heaped on the head of the luckless inventors, closes as follows:

The *Manufacturer* has unbounded admiration for Chicago and its irrepressible citizens, but the line must be drawn somewhere, and we prefer to draw it where cohesion ends and gravitation begins. When the average Chicagoan can make a jew's-harp out of bottled air, or a Corinthian column out of a section of Lake Michigan, or a lightning-rod out of Jove' thunder-bolt, then we will believe that he can pass molten metal between rolls. If rumor is not exaggerated, it is possible to make a tennis-racket out of a Chicago lady's shoe; but until that is done we must be pardoned for our skepticism on the metal question.

We would respectfully suggest to the editor to take a trip to Chicago, and he will there be able to see the process in actual operation rolling molten solder into sheets. On further investigation he will find that the leading steel manufacturers of the city, who may be presumed to know their business, are not at all skeptical about the adaptation of the process to rolling steel sheets and possibly other steel shapes.

The London *Ironmonger* has, we are surprised to observe, accepted seriously the statements on American cutlery exports which have recently been going the rounds of the American newspapers and upon which we commented in our issue for July 25. The *Ironmonger* calls the attention of its readers to the various points made against English cutlery manufacturers, believing evidently that they are worthy of careful consideration. The language almost verges on sarcasm, if it were not so obviously innocent of such a meaning. Witness the following:

Several rather curious reflections cannot fail to occur to practical men after reading these remarks. On the face of them they seem to contain a justification (from an American point of view, of course) of the use of Bessemer and other "mild" steels for cutlery purposes, as well as for cutting parts of agricultural implements. The use of such steels has been a good deal declaimed against in this country, but everybody in the trade knows how largely and generally they are employed, and those who use them will probably not need this piece of American evidence to support their practice.

The absurdity of the statements made by the American cutlery expert, both with regard to the character of our foreign trade and its extent, has utterly failed to make itself apparent to our English friends.

An Important Customs Decision.

In the United States Circuit Court at Boston, on the 6th inst., Judge Colt gave a decision in favor of the plaintiff in the case of Joseph Birtwell against Leverett Saltonstall. The plaintiff in the case imported from Antwerp the iron-work for the foundation or frame of the floor in the third story of the new court-house in Boston. Each piece of iron was fitted, punched and shaped for its special place. Collector Saltonstall exacted a duty of 1¼ cents per pound upon all of this iron under a provision of the act of March 3, 1883, which says that "iron or steel beams, girders, joists, angles, channels, &c., shall be charged at the rate of 1¼ cents per pound." The plaintiff contended that this iron-work should have been assessed with a duty of 45 per cent. ad valorem under the following provisions of the same schedule: "Manufactures, articles or wares not especially enumerated or provided for in this act, composed wholly or in part of iron, and whether partly or wholly manufactured, 45 per cent. ad valorem."

Collector Saltonstall held that as the importation was composed of beams, girders, &c., although they may have been designed for a special purpose, the duty was properly assessed, and, further, that the general words, "all other structural shapes of iron or steel" in the last part of the clause referred to are broad enough to cover this importation. Judge Colt states that he had some doubt at first what might be included in the term "structural shapes of iron," but is now satisfied from the specific enumeration which precedes and from the evidence of those engaged in this branch of business that the words were not intended by Congress and do not in a commercial sense cover the importation in controversy.

OBITUARY.

JAMES HEMPHILL.

Col. James Hemphill died at Erie, Pa., on July 17, aged 72 years. He was a native of Philadelphia. At an early age he was manager of Greenwood Furnace, in Huntingdon County; later of forges near Hollidaysburg, Blair County; and afterward of General Reed's iron-works, at Middlesex, Mercer County, all in Pennsylvania.

JOHN GALBREATH.

John Galbreath died in West Fairfield, Westmoreland County, Pa., on July 24. He was born at that place on March 1, 1816. He was one of the oldest furnace managers in the United States, having been connected in that capacity with several of the old charcoal furnaces in Westmoreland and Cambria counties, Pennsylvania. He was also for a time part owner of the only charcoal furnace ever built at Johnstown, known first as Mount Vernon Furnace and afterward as Johnstown Furnace.

H. B. SCUTT.

H. B. Scutt, the well-known barb-wire manufacturer, died on July 29. He had been at a private retreat for several weeks, suffering from paralysis. Mr. Scutt was 47 years of age and was one of the pioneers in the manufacture of barb wire. He established a wire-mill at Joliet, working under royalty to the Washburn & Moen Mfg. Company. In 1882 he sold out his plant at Joliet to H. B. Scutt & Co. The works were removed to Pittsburgh in the same year. Their works are now located on the South Side and are owned by the Oliver & Roberts Wire Company, Limited. About a month ago the deceased was thrown from a buggy while out driving and was badly injured.

GEO W. KIMBALL.

Geo. W. Kimball, secretary of the Simmons Hardware Company, of St. Louis, Mo., died of heart disease at Swampscott, Mass., July 19, aged 54 years. Mr. Kimball was for a number of years located at Janesville, Wis., and during the time he was there was employed by W. J. Doolittle, E. S. Barrows and afterward with Pixley & Kimball. For nearly 17 years he has been connected with the Simmons Hardware Company, and for eight years represented them in Kansas and Colorado, and has many friends in that section who will greatly mourn his death. In January, 1886, he was elected secretary of the company. He leaves a wife and daughter, who are well provided for. He was a remarkably healthy man, and up to three months previous to his death had never lost but one or two days by sickness. His remains were interred at Janesville, Wis., on the 27th ult. Possessing an unusual amount of executive ability, and a man of business throughout, he was at the same time gentle and kind to all those with whom he came in contact. His place will be filled by another, but his memory will be revered, and in years to come his administration will be referred to with words of highest esteem and its abrupt ending will be commented upon with sorrow.

The Ship-Building of the World.

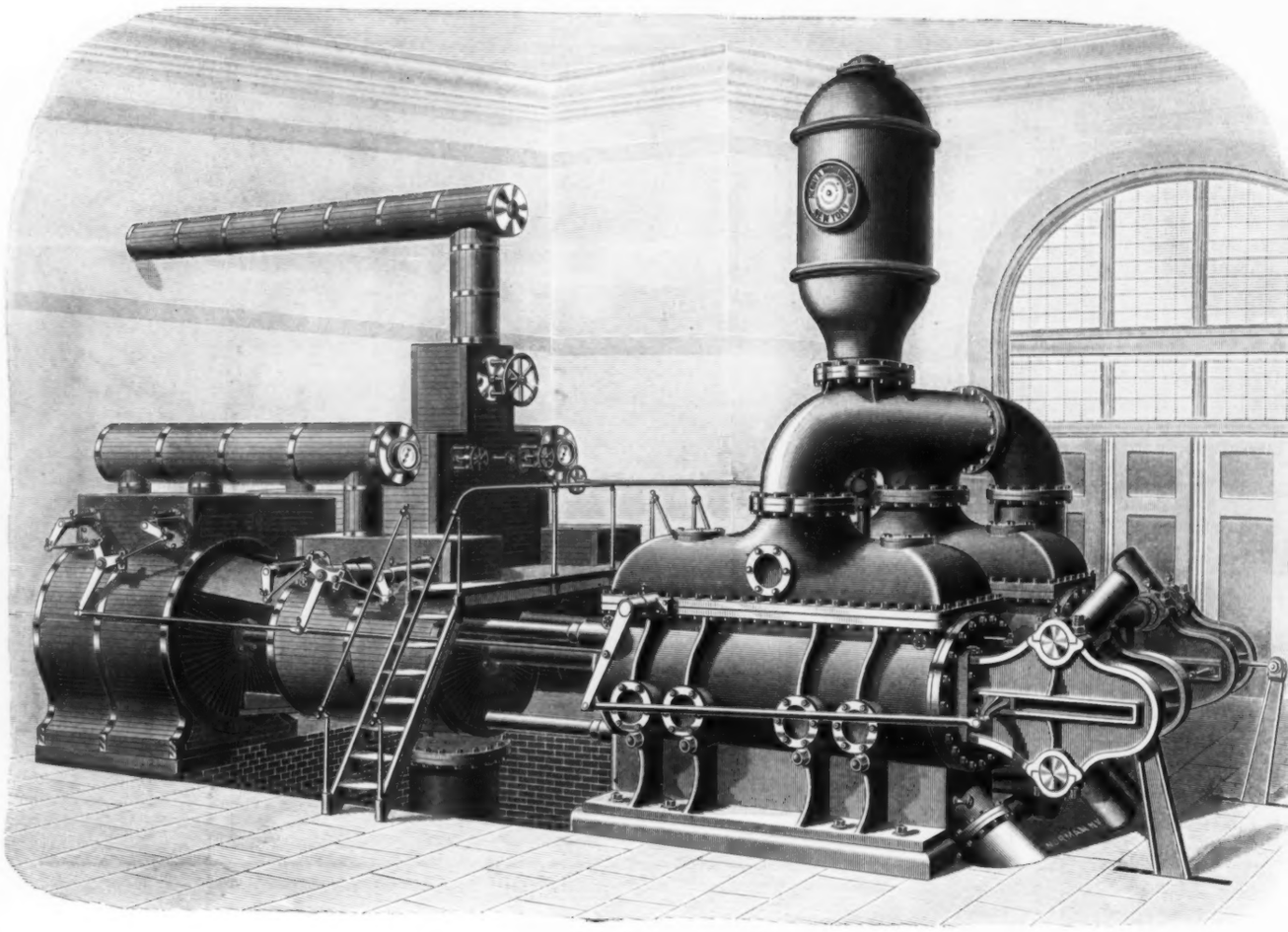
The "Universal Register" for the current year, recently published by the Committee of Lloyd's Register of British and Foreign Shipping, contains some interesting information concerning the mercantile ship-building of the world, which has been tabulated by an English contemporary. In Table I is given the total tonnage launched during the years 1887 and 1888. It is important to notice that small craft—viz., sailing vessels below 100 tons net register and steam vessels below 100 tons gross register, are excluded:

TABLE I.

Showing the Aggregate Number and Tonnage of all Vessels Built in the Respective Countries Enumerated during the Years 1887 *and* 1888.

	1887.		1888.	
	No. of vessels.	Tonnage.	No. of vessels.	Tonnage.
United Kingdom.	329	477,107	484	776,993
Germany	27	23,111	37	39,994
United States....	68	38,673	73	38,198
British colonies..	39	12,220	68	17,106
Norway.....	6	2,328	19	11,433
France.....	12	10,251	14	10,721
Denmark	5	2,485	5	5,721
Netherlands.....	2	717	3	5,156
Austria.....	2	570	5	5,038
Sweden.....	13	3,095	15	4,088
Greece.....	9	2,253	15	3,086
Italy.....	9	1,252	8	1,798
Russia.....	14	3,432	7	1,713
Other countries..	4	2,285	12	5,478
Totals.....	539	579,779	765	926,523

As compared with 1886, there had been an increase in the output of all the ship-builders in the world in the year 1887 of 16,697 tons. The comparative results of the last two years are widely different, there being an increase not only in the tonnage, but also in the number of vessels—viz., 226 vessels and 346,744 tons. This is an enormous difference, and we question if many persons have as yet fully realized its extent. In one year for the output of ship-builders to be increased by 60 per cent. is certainly remarkable. Examining Table I in detail, it will be noticed that the ship-builders of the United Kingdom have had a lion's share in the revival. Germany, which attained the second position as a ship-building nation in 1886 and lost it in the following year, is again second, but only by 1796 tons, the United States being third, This change has resulted from the latter having a slightly decreased and Germany an increased output of no less than 73 per cent. The British colonies continue to occupy the fourth position. Norway, which was eleventh in position in 1887 as regards the tonnage built, has risen to the fifth place, its ship-builders having constructed nearly five times as much tonnage and three times the number of vessels. France, with practically the same output as in the previous year, drops to the sixth position. Denmark has risen a grade higher, with more than double the tonnage of 1887, while Sweden, which in that year held the seventh position, has fallen to the tenth place, despite an increase of 30 per cent. The Netherlands has greatly improved its standing as a ship-building country, and



WORTHINGTON HIGH-DUTY PUMPING ENGINE.

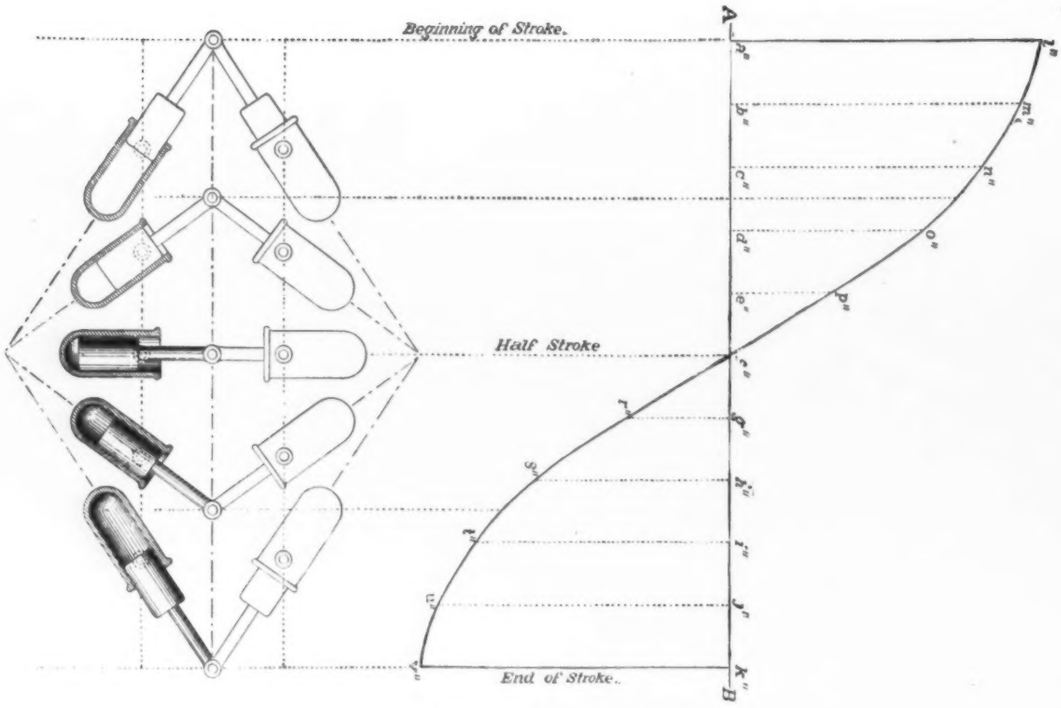
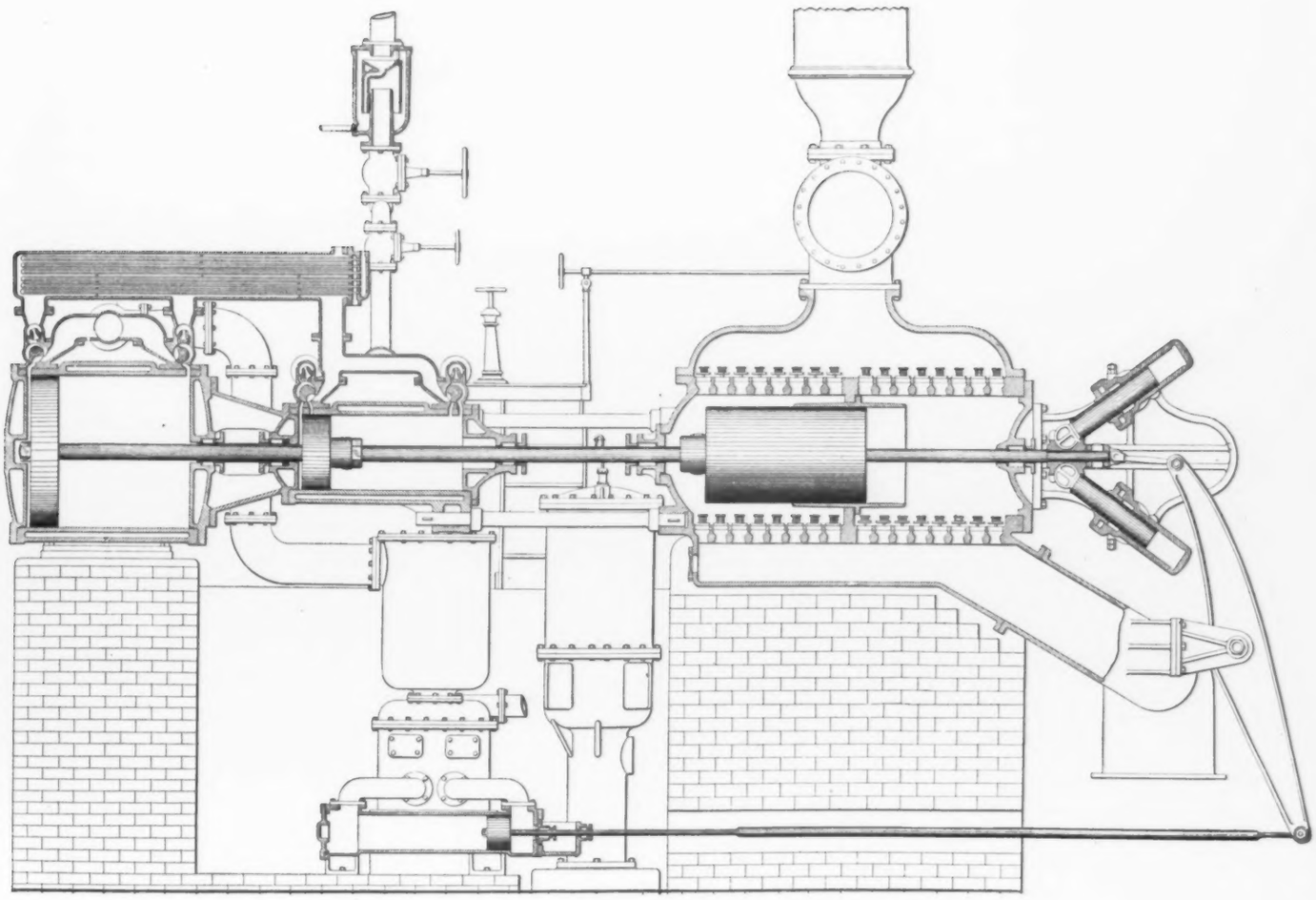
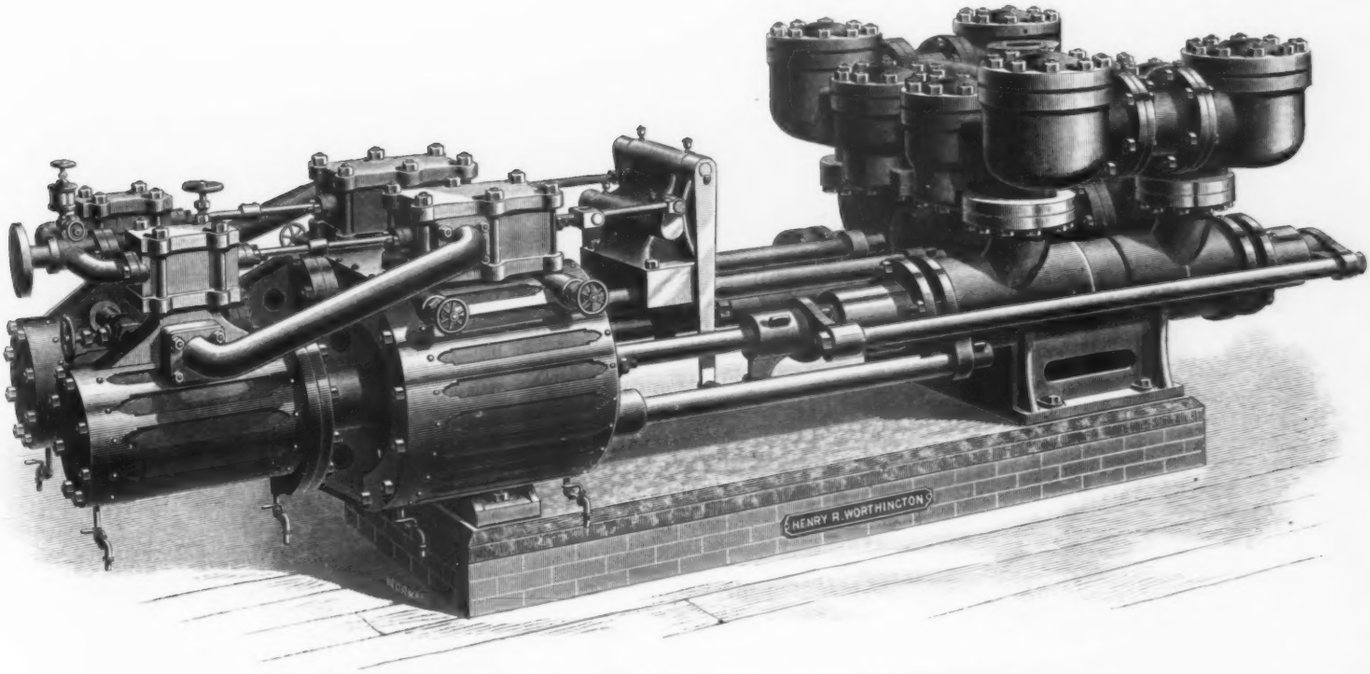


DIAGRAM OF COMPENSATOR ACTION.

THE WORTHINGTON PUMPING



LONGITUDINAL SECTION THROUGH HIGH-DUTY PUMPING ENGINE.



PRESSURE PUMP USED WITH EDAUX HYDRAULIC ELEVATORS IN EIFFEL TOWER.

MACHINERY AT PARIS EXPOSITION.

has risen from the twelfth to the eighth position, with a sevenfold output. Austria has been more fortunate, with nearly a ninefold increase. Greece has fallen back in the race despite additional activity, and the same remark holds true of Italy. Russia, from the sixth place, is last among the 13 principal ship-building countries of the world in 1888, having the only important decrease, slightly over 50 per cent. The minor ship-building countries have shared fully in the increased activity.

TABLE II.

Showing the Number and Tonnage of Sailing Vessels in the Various Countries Built during the Years 1887 *and* 1888.

	1887.		1888.	
	No. of vessels.	Tonnage.	No. of vessels.	Tonnage.
United Kingdom.	61	70,995	62	77,380
United States....	42	19,962	45	22,702
British colonies...	31	10,799	50	12,241
Norway.....	5	1,909	15	8,691
Germany.....	8	8,082	4	6,160
Greece.....	9	2,253	15	3,086
Sweden.....	2	714	4	1,115
France.....	5	1,026	4	1,098
Russia.....	14	3,432	5	1,083
Netherlands.....	1	396	1	1,007
Austria.....	1	100	2	720
Italy.....	9	1,252	5	703
Denmark.....	2	656	1	219
Other countries..	3	532	4	1,663
Totals.....	193	122,108	217	137,868

From Table II it will be seen that the decline in the building of sailing vessels, which was very marked in past years, has been arrested, and has given place to an advance of 24 vessels and 15,760 tons, or nearly 13 per cent. The United Kingdom has not obtained its full proportion of the increase in this department of ship-building. The United States of America have, and so have the British colonies. Norway has come in for a very large share of the improvement, having more than quadrupled its output. This relative distancing of the United Kingdom by rivals is due to a slight revival in wood ship-building, which has increased by 34 per cent. in the last year. The average size of sailing vessels built during 1888 in the whole world was 635 tons, as compared with 632 tons in the previous year, 764 tons in the year 1886 and 814 tons in the year 1885. Evidently the demand for small vessels does not diminish.

TABLE III.

Showing the Number and Tonnage of Steam Vessels in the Various Countries Built during the Years 1887 *and* 1888.

	1887.		1888.	
	No. of vessels.	Tonnage.	No. of vessels.	Tonnage.
United Kingdom.	268	406,112	422	699,613
Germany.....	19	15,029	33	33,834
United States....	26	18,711	28	15,496
France.....	7	9,225	10	9,623
Denmark.....	3	1,829	4	5,502
British colonies...	8	1,421	18	4,865
Austria	1	470	3	4,318
Netherlands.....	1	321	2	4,149
Sweden.....	11	2,381	11	2,973
Norway.....	1	419	4	2,742
Italy.....	..	..	3	1,095
Russia.....	..	..	2	630
Other countries..	1	1,753	8	3,815
Totals.....	346	457,671	548	788,655

Table III will probably attract more attention, as in it will be seen at a glance the great increase in both the numbers and tonnage of steam vessels built during the last 12 months. The greater activity in steamship and marine-engine construction has not been monopolized to such an extent by the United Kingdam as in the year 1887. The total increase for the world's steamship building during 1888, in comparison with the year 1887, was 202 vessels and 330,984 tons. Of this 154 vessels and 293,501 tons fell to English ship-building and marine-engineering establishments. In both these instances the increased output of tonnage represents slightly more than 72 per cent. Germany was relatively more fortunate, fully doubling its output. The United States of America lost ground, and France did not really share in the increased activity. Denmark tripled its output, and so did the British colonies, and all the remaining countries, it will be seen, improved their positions in steamship-building. In 1887 the average steamer built in the world was 1075 tons; in 1888 it had increased by 136 tons to 1211 tons. Taking the United Kingdom alone, we find in the earlier year the average tonnage was 1450 tons and in the later 1605 tons—an increase of 155 tons.

TABLE IV.

Showing the Materials of which Vessels were Built in the Years 1887 *and* 1888.

	1887.		1888.	
	No. of vessels.	Tonnage.	No. of vessels.	Tonnage.
Steel.....	259	418,701	451	780,496
Iron.....	121	109,326	106	75,382
Wood.....	154	50,784	203	68,300
Composite.....	5	968	5	2,345
Totals.....	539	579,779	765	926,523

The displacement of iron by steel as a ship-building material continues, as may be seen in Table IV. In 1885 only 30.3 per cent. of the tonnage built in that year was constructed of mild steel, in 1886 the proportion was 45.4 per cent., in 1887 it increased to 72.2 per cent. and in 1888 it reached 84.2 per cent.

TABLE V.

Showing the Materials of which Sailing Vessels and Steam Vessels were Respectively Constructed during 1888.

	Sailing vessels.		Steam vessels.	
	No. of vessels.	Tonnage.	No. of vessels.	Tonnage.
Steel.....	43	58,944	408	721,552
Iron.....	18	24,359	88	51,023
Wood.....	155	54,310	48	13,990
Composite.....	1	255	4	2,090
Totals.....	217	137,868	548	788,655

Table V deals with the materials used in the construction of vessels in the year 1888, distinguishing between sailing ships and steamers. It is noteworthy that, excluding wood vessels, nearly one-third of the remaining sailing tonnage was built of iron.

Germany's Floating Exposition.

Germany's floating exposition palace scheme is being rapidly pushed to the front. The giant steamer Kaiser Wilhelm will be built for the purpose at Kiel. She will be 570 feet long, 70 feet broad and her depth will be 45 feet, German measure. The biggest steamer now afloat—the City of New York—is 560 feet long, 63 feet broad and her depth is 44 feet, English measure. The Kaiser Wilhelm will contain eight immense exposition halls, with galleries and pavilions for separate exhibits. It will be a permanent institution, starting from Hamburg or Bremen every two years and touching every port of consequence in the world. The floating exposition palace will exhibit exclusively the works of German manufacturers. The scheme is to bring the products of German industry directly to the notice of importers in foreign countries, and this at a small outlay. The exhibitors are asked to pay for every exposition port $1.25 for the cubic meter space their goods occupy. The goods will be placed in such a position and so thoroughly fastened that the movements of the vessel will not disturb or damage them. They may be changed or added to in every port. The company will take it upon themselves to introduce them to the merchants of foreign countries, or a representative of the firm exhibiting the goods may accompany the freight.

The steamer will stop in important ports like New York and Boston from two to three weeks. The briefest stop made will be for three days. If the steamer cannot conveniently make fast to a pier communication will be established by the aid of electric boats. There will be motors for the proper exhibition of machinery, and extra rooms have been set apart for engines, locomotives, &c. It is estimated that the Kaiser Wilhelm will cost $1,250,000 to build. The steamer will use 100 tons of coal a day, and in two years will be under steam 200 days. She will carry no sails, and will be built in accordance with the provisions of the first-class steamers of the German Lloyd Line. The vessel will have four screws, which work independently of each other. The draft of the ship can be regulated to suit the convenience of making fast to piers, the steamer having a double bottom forming a basin, which can be filled with water. The 18 steam-boilers will be on the after-deck. More than a thousand electric lights are to distribute illumination. An exposition gazette will be printed on the steamer, containing advertisements in 10 different languages. A trip around the world, lasting two years, aboard the Kaiser Wilhelm costs $3000 for the first cabin and $1500 for the second cabin. The floating exposition scheme has received high official recommendation, and the German Government will give it moral encouragement.

PERSONAL.

Mr. Charles G. Lundell, of No. 7 Exchange place, Boston, Mass., a well-known dealer in Swedish iron, announces that he went out of business on August 1. Mr. Lundell withdraws after 21 years of active service in this country. He expects to leave for Europe on a vacation in a short time.

Dr. William M. Sweet, for many years in the service of the American Iron and Steel Association, has assumed the editorship of *Iron*, a monthly journal published in Philadelphia. This paper has recently been greatly improved in numerous ways, having changed ownership.

The following well-known names appear in the lists of committee men appointed to promote the New York World's Fair of 1892: Andrew Carnegie, B. G. Clarke, Abram S. Hewitt, Seth Low, Jordan L. Mott and Frank S. Witherbee.

Robert P. Porter, Superintendent of the Census, has appointed Charles Kirchhoff, Jr., and John Birkinbine special agents to collect statistics of mines and mining. Mr. Kirchhoff will have charge of the statistics of copper, lead and zinc and their ores. He is now in Europe but is expected home next week. Mr. Kirchhoff has been special agent for the United States Geological Survey since 1882, collecting statistics of the special metals named. Mr. Birkinbine will have charge of the statistics of iron ores. He is one of our best-known mining engineers and has also collected statistics for the United States Geological Survey.

Morris S. Wise, of New York, was elected vice-president of the Industrial Congress at Paris. He will read a paper on trade-marks.

E. C. Potter, vice-president of the Illinois Steel Company, looks confidently forward to the time when ocean steamers will land at the port of Chicago.

The commerce of Long Island Sound is assuming very large proportions. A Government record shows that the number of vessels was 5000 larger last year than the year before.

The great Sutro Tunnel in Nevada has been sold under foreclosure of mortgage to the Union Trust Company for $1,625,000.

TRADE REPORT.

Chicago.

Office of *The Iron Age*, 59 Dearborn street, CHICAGO, August 5, 1889.

Pig-Iron.—There is very little contracting for large quantities now. Nevertheless a good movement for general consumption exists in carloads, 50-ton and 100-ton lots. Quite a number of the orders for Charcoal Iron come from consumers east of Ohio. Contracts for long-time delivery are not refused, but command a higher price than heretofore. The market has been steadily gaining strength for two months, and to-day is probably all around nearer prices quoted than at any time previous. It always happens that when prices begin to advance sellers have many options out on Iron that are good for a long time after, and until these are filled or canceled the asking price gets frequent setbacks. It is probable that all options closed with July, and there are few, if any, buyers who can do better than prices named. It is said that the only remaining Charcoal furnace selling at $18 last week has advanced to the figures quoted. Coke Foundry, Silvery, Mottled and Gray Forge have been in fair demand in small quantities which could not be supplied in the last two grades. Southern makers' prices are higher than consumers can pay for the crude Iron and come out whole on the finished product. There has been some inquiry for Bessemer lately, but local makers will not take the order, and the price offered is too low to let the order go to the Ohio furnaces. Quotations are as follows, f.o.b. Chicago: Bessemer, $17; Lake Superior Charcoal, $18.50 @ $19; Local Coke, No. 1, $16; No. 2, $15; No. 3, $14; Chicago and Bay View Scotch, No. 1, $16; American Scotch (Blackband), $17.50 @ $18; Southern Foundry, No. 1, $16.50; No. 2, $15.50; No. 3, $14.50; No. 1, Soft, $15.50 @ $15.75; No. 2, $14.50; Gray Forge, $14.50; Mottled, $14; Tennessee Charcoal, No. 1, $17.75; Alabama Car-Wheel, $24 and $25; Hanging Rock, No. 1, $18.50; Jackson County, No. 1, $17.50 @ $18.

Bar-Iron.—There is considerable firmness in the tone of the market and buyers of Common Iron defer placing orders as much as possible. Since the makers of cheaper Iron have been asking higher figures there has been a marked improvement in the demand for the better qualities. There are many inquiries for prices on large lots of Iron to be delivered in case the expected break in freight rates occurs. It is pretty difficult to arrive at satisfactory conclusions on prices. We hear the mills are asking 1.65¢, flat, on car specifications; 1.65¢ and 1.67½¢ and 1.70¢ half extras, f.o.b. Chicago, for Common Iron. At the same time it is said that makers are asking 1.60¢ @ 1.65¢, at mill. We have not learned of any contracts being placed last week as low as 1.55¢ at mill, and yet buyers say that there are mills who would accept desirable orders at that price and less. Single Refined is quoted at 1.75¢ and Best Refined at 1.85¢, f.o.b. Chicago. From store jobbers quote 1.70¢ @ 1.75¢ for Common, 1.85¢ for Single Refined and 1.90¢ @ 2¢ for Best Refined.

Structural Iron.—The number of large contracts in the market is diminishing, but the small ones are numerous. A great deal of work is under way and manufacturers of Beams and Angles are scarcely able to meet all deliveries. Foundry men engaged in this class of work are all busy, yet there is a constant complaining of low prices. The following quotations are quite firm, f.o.b. Chicago: Angles, 2.25¢ @ 2.35¢; Universal Plates, 2.20¢ @ 2.30¢; Sheared Plates, 2.25¢; Tees, 2.55¢; Beams and Channels, 2.90¢. From store: Angles, 2.40¢; Tees, 2.65¢ @ 2.70¢; Beams, 3.40¢

Plates, Tubes, &c.—All the mills are full and orders for Plates that are wanted immediately cannot be placed. Trade is quite active from stock, and jobbers are realizing full prices. Quotations are as folows, from store: Iron Sheets, Nos. 10 to 14, 2.60¢ @ 2.70¢; Steel, Nos. 10 to 14, 2.75¢ @ 2.80¢; Tank, Steel and Iron, 2.50¢ @ 2.60¢; Steel Plates, Shell, 3¢; Flange, 3.50¢; Fire-Box, 4.25¢; Otis, 5.50¢; Ulster Iron, 3.75¢; Boiler-Rivets, 4¢ @ 4.25¢; Boiler-Tubes, 52½ % discount on 1¾-inch and less and 57½ % discount on 2-inch and larger.

Sheet-Iron.—It is said orders for 50 to 100 tons are in the market and cannot be placed. Buyers could pay on a basis of 3¢ for No. 27, at mill, if deliveries could be made. Some mills are not asking more, but are unable to take additional orders. Others are quoting on a basis of 3.10¢ for No. 27, at mill. Out of store jobbers quote No. 27 at 3 10¢; Nos. 25 and 26 at 3.20¢; No. 27 at 3.30¢.

Galvanized Iron.—In the better grades of Iron there is a very active trade in small lots from store. Assortments are still in good shape, but not large. Jobbers quote Juniata 65 % off, and Charcoal 65 % and 5 % off. It is a singular fact that manufacturers of low-grade Iron cannot desist making concessions. On a recent order an Ohio mill is said to have quoted 70 % and 2½ % off regular terms.

Merchant Steel.—From store in small lots trade is very steady. Some unplaced contracts for the year's supply are still pending. The demand for Boiler Steel is very heavy. Bessemer Bars are being used in many places instead of Iron, and the rapidly increasing demand for them is taxing the makers' capacity. Ordinary grades of Tool Steel are in excellent request. Manufacturers quote f.o.b. Chicago, as follows: Soft Steel Bars, 2¢; Spring Steel, 2.25¢; Tire Steel, 2.25¢; Toe Calk, 2.30¢ @ 2.50¢, flat; Open-Hearth Machinery Steel, 2.75¢; Plow Stock, Open-Hearth, 2.50¢; Crucible, 3.50¢. Jobbers quote from store: Mild Machinery, 2 10¢ @ 2.30¢; Tool, 7.75¢ @ 8.50¢; Bessemer Machinery, 2.40¢ @ 2.60¢; Open-Hearth Machinery, 3¢; Sheet, 7¢ @ 10¢; Tire, 2.30¢.

Steel Rails.—The demand continues very good for light Iron and Steel Rails. For Steel manufacturers quote $33 @ $34 on 30-lb and $38 @ $40 on 12-lb and 20-lb. Light Iron are quoted at $36 at mill. On heavy sections there is no change in the situation. Mills continue to quote $29 @ $30 for such deliveries as they can make.

Track Supplies.—The market is quite active compared with 30 days ago. Prices are firm, with an upward tendency. Quotations are as follows, f.o.b. Chicago: Steel Splice-Bars, 1.85¢ @ 1.90¢; Iron Splice-Bars, 1.75¢ @ 1.80¢; Spikes, 1.87½¢ @ 1.90¢; Bolts, Square Nuts, 2.50¢ @ 2.55¢; Hexagon, 2.60¢ @ 2.70¢.

Old Rails and Wheels.—The demand for Old Rails has revived. It is said $22.25 was paid for a lot of 500 tons, and the same price refused on a lot of 250 tons. Sellers are firm and indifferent about selling. Steel Rails, short pieces, are quoted at $14 and long pieces at $17.75 here and $19 at Youngstown. Several small lots of Wheels were sold at $18, and a lot of 100 tons at $18.25 was offered.

Scrap-Iron.—Transactions are very light. There are a good many inquiries for Scrap, but buyers are not disposed to place orders at prices asked. There has been a fair demand for Car-Axles, Horseshoes, No. 1 Mill and No. 1 Forge at $1 ℔ ton below prices quoted. Dealers' quotations are as follows ℔ ton of 2000 lb: No. 1 Forge, $18; No. 1 Mill, $14; No. 2 Mill, $9; Car-Axles, $22.50, net ton; Horseshoes, $19; Wrought Turnings, $11 50; Cast Borings, $8.75; Cast Machinery, $11.50; Leaf Steel, $15; Coil Steel, $14; Locomotive Tires, $16; Mixed Country Scrap, $12 @ $13.

Hardware.—Trade is exceptionally good for the season, and picking up very rapidly in Household Goods and Shelf Hardware. Orders by mail are numerous, and traveling men are booking large assortments of goods for later delivery. Country retailers are increasing their stock on the excellent prospects for fall and winter trade.

Nails.—At the moment the market is unsettled. Jobbers are in a quandary over the proposed movements of the new association. Reducing the gauge and changing the manner of selling is calculated to disturb prices and demoralize trade. No one is certain whether it is best to buy or not to buy, and manufacturers do not appear to be any more certain whether it is best to sell now or wait for further developments. In their quotations they give a semblance to firmness, but some of the prices named last week were lower than any of those reported the week before. Makers are offering Cut Nails at $1.65 rates on a 30¢ average, and imply that the price can be shaded. Wire Nails are quoted at $2.25, Chicago, by makers. From store jobbers quote $1.85 for Cut Nails, and $2.30 for Wire Nails in carload lots and $1.90 and $2.35 in small lots.

Barb-Wire.—Business is quiet, and some of the mills have shut down. Those who are running are piling their stock. Jobbers are not having much demand for immediate shipment, but inquiries from Southern trade for delivery next month are increasing. They continue to quote Galvanized at 3.35¢ and Painted at 2.75¢, in small lots. Somebody is asking, What has become of that trust combine?

Pig-Lead.—The market was weak and sluggish. Price fell to 3.75¢ early in the week, at which sales of several hundred tons are reported for present and future delivery. Nominal quotations are 3.75¢ for Common and 3.85¢ for Refined.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St., PHILADELPHIA, Pa., August 6, 1889.

Developments during the week have again been favorable to the selling interests. Firmness rules along the entire line, with slight advances in a few specialties. Prospects continue to be of the most favorable character, and there is abundant reason for expecting a period of unusual activity during the balance of the year. The supply is enormous, but events during the past few days show that the margin between supply and demand is uncomfortably close.

Pig-Iron.—The market has shown a fair degree of activity and indications of strength which are very encouraging to holders The majority of consumers bought heavily during May and June, and will undoubtedly be in the market again soon, but they hesitate in paying advanced prices until they are forced into it. But deliveries are being rapidly called for, and there is no doubt buyers will be ready quite as soon as sellers are. The current demand is not small, by any means, and prices are gradually working higher. Gray Forge, for instance, is usually held at $15.50, and good No. 1 at $17 is almost a thing of the past; some, in fact, are dropping the $17.50 quotations, although

there is plenty of good Iron at that figure yet, but the tendency is to higher figures. The supply of good Iron for immediate delivery is decidedly small, and of new brands or of brands more or less uncertain in quality there is no very large amount, although there is enough to prevent the old figures from being entirely eliminated from our list of quotations. It also gives buyers a chance to say they are offered Iron at such and such figures, which is true as far as it goes, but such prices don't make the market. Good and tried Irons are what consumers are after, and for such $17.50 @ $18 is realized for No. 1 Foundry, delivered at tide, $16.50 @ $17 for No. 2, and $15.25 @ $15.50 for Gray Forge. There are brands, as stated above, that can be had at $15, $16 and $17, but they are exceptional to the general market. Southern Iron does not appear to be of much interest to either buyers or sellers, although quotations are given at $15, $16 and $16.50 for the three grades, subject to carload trial lots. There is no pressure to sell, but these prices would probably be shaded, exship, to desirable buyers.

Blooms.—The market is active and prices generally a shade higher. Quotations are difficult to give, however, as so much depends on the tests that are required. Some of the leading makers have their order-books full to the end of October, and are therefore not quoting, but sellers can be found at about the following figures: $29 @ $29.50, delivered, for Nail Slabs; $30 @ $31 for Tank Slabs; $32.50 @ $33.50 for Shell Slabs; $36 @ $37 for Flange, and $38 @ $40 for Fire-Box; Charcoal Blooms, $52 @ $54; Run-out Anthracite, $41.50 @ $42.50; Scrap Blooms, $32 @ $33 ℔ "Bloom" ton of 2464 lb

Muck-Bars.—Mills are well sold up, so that there are very few Bars offered. Latest sales were at $29, delivered, although some ask more than that, but $28.50 at mill, or $28.75 @ $29, delivered, are fairly correct quotations of to-day's market.

Bar-Iron.—The demand keeps up and there are but few mills that are not full of work for some weeks to come. There is still a great deal of inquiry and a large amount of business which must be placed some time during the current month There are still some complaints in regard to prices, but as the mills are running to their fullest capacity with at least $\frac{1}{10}$¢ advance from the low figures ruling in the spring, manufacturers must have bettered their position considerably, notwithstanding the increased cost of production. Prices show some irregularity, 1.80¢ @ 1.90¢ being the extreme limits both ways. The feeling is firm, with the chances in favor of better prices in the near future. Skelp-Iron is wanted in large quantities, especially Sheared, which is held at about 2.10¢, although one or two orders were placed at a trifle less money. Grooved is quoted 1.85¢ asked, but no sales have been reported at that figure so far, but at 1.80¢ buyers would probably take hold.

Plates.—There has been a continued good demand for plates and prices are again beginning to develop an advancing tendency. For Ordinary Plates 2¢ @ 2.05¢, at mill, are rock-bottom figures, and although the higher grades sympathize to some extent there is a wide disparity in the figures named by different mills. Full employment, however, is now so general that more uniformity may be expected, especially in view of the very large amount of business in sight. Prospects continue to improve and great activity during the balance of the year is considered settled beyond question. Prices are usually quoted about as follows: 2.1¢ @ 2.2¢, delivered, for Ordinary Plates and Tank Plates; 2.10¢ @ 2.25¢ for Universal Plates; Shell, 2.4¢ @ 2.5¢; Flange, 3.25¢; Fire-Box, 3.7¢ @ 4¢; Steel Plates, Tank and Ship Plate, 2.2¢ @ 2.30¢; Shell, 2.5¢ @ 2.7¢; Flange, 2¾¢ @ 3¢; Fire-Box, 3½¢ @ 4¢.

Structural Material.—The demand is very heavy and orders for early delivery hard to place. Prices are nominally unchanged, but there is a strong undertone with a decided tendency to stiffness in both Plates and Angles, but for the present quotations are about as follows: Bridge Plate, 2.10¢ @ 2.15¢; Angles, 2.10¢ @ 2.20¢; Tees, 2.6¢ @ 2.7¢; Beams and Channels, 2.8¢ for Iron or Steel, all delivered at Philadelphia or its equivalent.

Sheet-Iron.—The demand is very large and mills abundantly supplied with orders at firm quotations. The advance in Steel Billets gives extra firmness in the prices of Sheet-Steel, and some makers are asking higher prices, but for the present we quote carload lots as follows:

Best Refined, Nos. 14 to 20	3¢
Best Refined, Nos. 21 to 24	3.20¢
Best Refined, Nos. 25 to 26	3.40¢
Best Refined, No. 27	3.50¢
Best Refined No. 28	3.60¢
Common, ¼¢ less than the above.	
Best Soft Steel, Nos. 14 to 20	3¼¢
Best Soft Steel, Nos. 21 to 24	3½¢
Best Soft Steel, Nos. 25 to 26	3¾¢
Best Soft Steel, No. 27	4¢
Best Bloom Sheets, ¼¢ extra over the above prices.	
Best Bloom, Galvanized, discount	65 %
Common, discount	67½ %

Steel Rails.—There is nothing of interest to report in this department. Mills are fairly full of orders for the next couple of months, and there is a good deal of inquiry besides, but for some reason buyers seem to be in no hurry to close contracts. Prices are firm at $28 @ $28.50, at mill, for early deliveries, with a possibility of slight concessions on winter work.

Old Rails.—There is more inquiry from the interior, and $23.50 @ $24 has been paid for lots delivered in consumers' yards. The offerings are light and holders firm at the outside quotation.

Scrap-Iron.—The market is less active, although the supply is so small that quotations have been maintained at about the following figures: $20.50 @ $21 50 for cargo lots; $21 @ $21.50 for carload lots, delivered, or for choice, $22; No. 2 do., $14 @ $15; Turnings, $14 @ $15; Old Steel Rails, $16.50 @ $17.50; Cast Scrap, $15 @ $16; do. Borings, $9 @ $10; Old Fish-Plates, $23 @ $24; Old Car-Wheels, nominal, $17 @ $18, Philadelphia.

Wrought-Iron Pipe.—Business is very active and prices are fully maintained through the entire list. Discounts quoted as follows: Butt-Welded Black, 50 %; Lap-Welded Black, 62½ %; Butt-Welded Galvanized, 42½ %; Lap-Welded Galvanized, 50 %; Boiler-Tubes, 52½ % @ 57½ %, according to size.

Nails.—The market is a little dull, but a somewhat improved feeling may be noted as regards prices. Circulars from Western mills were sent out at what seemed to be very low prices, but an examination of their list showed that they were for special sizes, so that, after all, they were not as low as they appeared to be at first sight. Prices here are about $1.90 for carload lots and $2 for lots from store.

Pittsburgh.

Office of *The Iron Age*, 77 Fourth Ave.
PITTSBURGH, August 6, 1889.

The general Iron and Steel situation continues in a very satisfactory condition. Not for several years have the mills and furnaces in this district been so fully employed. The reports from nearly all parts of the country are of a most encouraging character. The crops are generally good and have been secured in excellent condition, and the moving of these insures a good fall and winter for the railroads. This will encourage the railroads to add to their rolling-stock, which means a largely increased demand not only for Rails but all kinds of Railway Supplies. The Pennsylvania Company are now having some 5000 new cars built. The railroads centering here appear to be very fully employed, some of them having more than they can do.

In regard to the Coke strike it is difficult to state at present what it is likely to amount to. If it should become general and hold out any time there would soon be a scarcity of Coke and blast-furnaces would be greatly inconvenienced, if not forced to blow out, but it is probable the matter will be adjusted in some way or other.

Pig-Iron.—There is a continued active and firm market, with more buyers than sellers at present prices. As a rule furnace men are pretty well sold ahead. Thus far there has been an advance of 75¢ ℔ ton on Mill Iron and fully $1 on Bessemer, and that, too, in the absence of speculation. The improvement was caused wholly by the largely increased legitimate demand from actual consumers. There were moneyed men who thought of investing in Pig-Iron some time ago, but the makers got away from them, and they have now about given up the idea. We quote prices as follows:

Gray Forge Neutral	$14.25 @	$14.50,	cash
All-Ore Mill	15.50 @	16.00,	"
White and Mottled	13.50 @	14.00,	"
No. 1 Foundry	16.00 @	16.50,	"
No. 2 Foundry	15.00 @	15.50,	"
No. 2 Charcoal Foundry	21.00 @	21.50,	"
Cold Blast Charcoal	24.00 @	27.00,	"
Bessemer Iron	16.75 @	17.00,	"

We are advised of sales of some 10,000 tons of Gray Forge at $14.25 @ $14.50, cash, for No. 1 brands, for delivery during the next 30 to 90 days; there was a sale of 3000 tons close Bessemer for future delivery at $16.50, cash, and 2000 tons No. 1 do. at $16.75, cash. So far as we are advised, there have been no sales above $16.75, cash, but some of the furnaces are now asking $17, cash, and refusing to sell for less; we should not be surprised if the price last quoted should be realized within the next few days, as there are but few sellers.

Spiegel—Is quoted at $30 @ $30.50 for 20 %, and Ferromanganese at $60.50 @ $61 for 80 %.

Muck-Bar.—The market continues firm, in sympathy with Pig-Iron; $27.50, cash, appears to be the ruling price at present, but it is rumored that some sales have been made at $28. There is an evident attempt being made to boost the market, and well-informed operators take the report of sales at $28 with considerable allowance.

Manufactured Iron.—There is an increasing demand for all kinds of finished Iron, and prices are still tending upward, in sympathy with the raw material. The Sheet mills are running full, and there is a good demand for Structural, Plate and Tank Iron. Considerable shipments of Cotton-Ties have been made of late South, chiefly by river. Prices are quoted upon a basis of 1.70¢ @ 1.80¢ for Bars made from No. 1 Muck-Bar, and 1.50¢ @ 1.60¢ for Old-Rail Iron, 60 days, 2 % off for cash. Skelp Iron is in active demand and higher, with those making a specialty of the same oversold. We now quote Grooved at 1.72½¢ @ 1.75¢, and Sheared at 2¢ @ 2.10¢.

Nails.—The Nail trade continues in an unsettled and unsatisfactory condition. Pittsburgh manufacturers continue to supply the local trade here upon a basis of $1.90, 60 days, 2 % off for cash, for 12d to 40d, but they would not contract for future delivery at the price quoted. Nail Slabs have gone up from $1 to $1.50 ℔

ton, and unless the price for Nails goes up they will for the time at least go out of the business. There are only two firms here pretending to pay any attention to the Nail business, and they are doing next to nothing, owing to the very unsatisfactory condition of the market. There is considerable inquiry, but it seems very difficult to get up prices, which at present do not cover actual cost of production, taking the increased cost of Slabs into consideration. In regard to Wire Nails, while the card remains unchanged at $2.25, 60 days, 2% off for cash, it is claimed that they are being sold considerably below the card rates, and that the demand is light. There is much rivalry between the Cut and Wire Nail manufacturers, and this no doubt has considerable to do with the unsettled and unsatisfactory condition of the market.

Wrought-Iron Pipe.—There is no abatement in demand, especially for large Pipe, and prices are firm at combination rates. Your correspondent here is informed by those in a position to know that never before was the Pipe Association so well controlled as during the present year. Manufacturers are all in the association, and prices fixed by the association have been faithfully adhered to—no cutting whatever. The regular monthly meeting of the association will take place at Philadelphia on the 13th inst. Discounts remain unchanged; Black Butt-Welded Pipe, 50%; Galvanized do., 42½%; Black Lap-Welded, 62½%; Galvanized do., 50%; Boiler Tubes, 1¾ inches and smaller, 52½%; 2 inches and larger, 57½%; 5⅝ Casing, 60%.

Old Rails.—There have been no sales reported during the past week. The last sale reported was at $24 and we now quote at $24 @ $25. There are but few offering and with considerable inquiry the tendency is still upward. Old Steel Rails are also firm and in better demand. We are advised of a sale of 600 tons short pieces at $19. Long lengths, in the absence of sales, may be quoted at $20 @ $21.

Billets, Blooms, &c.—There is a good deal of inquiry for Bessemor Steel Billets and with the mills all oversold the market is strong and prices are higher and may now be quoted at $28 @ $29, according to size, quality and delivery. Nail Slabs are also firm and tending upward; may be quoted at $28 @ $28.25 in absence of sales. Rail Crops scarce and tending upward, but in the absence of sales it is difficult to give reliable quotations.

Steel Rails.—Heavy Sections are still quoted at $28 @ $29, cash, at mill, as to delivery, character of order, &c.

Railway-Track Supplies.—Spikes have been advanced to 2¢, 30 days, delivered on cars at works. Splice-Bars and Track Bolts are still quoted as before, but these, too, will have to go up with everything else.

Old Material.—There is an increasing demand and prices are firmer. No. 1 Wrought Scrap is now stiff at $20, net ton; Wrought Turnings, as to quality, $13 @ $14; Car-Axles, $24 @ $25; Cast Scrap, $15, gross; Cast Borings, $11.50 @ $12.50; Old Car-Wheels, $18.

St. Louis.

OFFICE OF *The Iron Age*, 214 N. Sixth st.,
ST. LOUIS, August 5, 1889.

Pig-Iron.—The week just closed has been a quiet one in comparison with those immediately preceding it, and yet, notwithstanding the dullness, the general tone of the market continues strong and prices are quoted firmer with every sale. Whether the dullness means a cessation of activity or merely a breathing spell preparatory to an increased demand later on is a hard question to solve, but the general opinion of the trade tends to the belief that the latter interpretation is the correct one, and they are consequently working on that basis. The demand for Foundry-Iron is particularly heavy, and a number of furnaces are sold so far ahead that they have withdrawn from the market entirely, and it is difficult to secure prompt shipments, and consequently full prices prevail. For ordinary-sized lots we quote as follows for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry,	$15.75	@	$16.00
Southern Coke, No. 2 Foundry,	14.75	@	15.50
Southern Coke, No. 3 Foundry,	14.50	@	14.75
Gray Forge	14.00	@	14.25
Ohio Softeners	17.00	@	19.00
Lake Superior Charcoal	20.00	@	21.50
Missouri.			
Charcoal Foundry, No. 1	16.25	@	16.50
Charcoal Foundry, No. 2	15.00	@	15.50
Tennessee.			
Charcoal Foundry, No. 1	17.50	@	18 00
Charcoal Foundry, No. 2	17.00	@	17.50

Connellsville Coke, f.o.b. East St. Louis, $4.40; St. Louis, $4.55.

Bar-Iron.—Mills have not been as well employed for months and the outlook is very encouraging for a continuance of the activity during the balance of the year; car-works are kept well employed and are placing some good-sized orders for Manufactured Iron of all descriptions. Prices show steady improvement and are quoted as follows: Small lots from store at 1.8¢ @ 1.85¢. Carload lots cannot be bought for less than 1.65¢, and in some cases 1.67½¢ is asked.

Barb-Wire.—There is no change to report, and in the absence of sales prices are to a certain extent nominal, as follows; From 2.75¢ to 2.80¢ for Painted, and from 3.35¢ to 3.40¢ for Galvanized; carload lots at from 2.65¢ to 2.70¢ for Painted and 3.25¢ to 3.30¢ for Galvanized, f.o.b. St. Louis.

Chattanooga.

Office of *The Iron Age*, Carter and 9th Sts.,
CHATTANOOGA, August 5, 1889.

Pig-Iron.—The condition of the market is unchanged so far as prices are concerned, although the strong demand would indicate a continued stiffening up of prices. Buyers appear to be very anxious to place orders with the producers for monthly deliveries for the balance of the year, but the fact is that there are not many of the furnaces that have the Iron to spare beyond what is already contracted for. There seems to be a disposition on the part of some to buy for cash round lots to be delivered at furnace within a specified future time, but so far these offers are not looked upon with a favorable eye by the producers, as from the present outlook they run no risk in holding back their Iron for developments as they turn up. There is no question but what the market is strong. Last week a premium of 75¢ ℔ ton was paid for the assignment of a thousand-ton order, which affords an example to the furnaces that by pursuing a conservative policy they may realize themselves all such advances. Pipe Iron continues in demand, and there are large numbers of inquiries from car-works. Cold-Blast Car-Wheel Iron is looking up, and prices of this kind of Iron will probably advance comparatively more than Common Coke Iron. A little disorganization of the market has occasionally occurred by the acts of new stacks going into blast. The owners appear to be under the impression that in order to introduce their Iron on the market some cutting must be done, which sometimes reaches 50¢ to $1 ℔ ton. In a month or two, however, that usually ends, and the production assumes its legitimate place in the Iron market, but for the time being it seems to depress the market.

Louisville.

LOUISVILLE, KY., August 5, 1889.

The market continues to show great firmness, and furnaces feel that they are warranted in asking more money. It is thought that the strike in the Connellsville district and the scarcity of Coke in the Birmingham district will tend to advance prices. The reported action of the Pennsylvania Railroad in asking bids on a large amount of rolling-stock is considered of great importance to the Iron industry, as their purchase of cars, it is considered, will be followed by other roads, and will result in the sale of a large amount of Iron. Old Rails are scarce and very high, being held at $23. We quote prices of Pig-Iron as follows:

Southern Coke, No. 1 Foundry	$15.00	@	$15.50
Southern Coke, No. 2 Foundry	14.50	@	15.00
Southern Coke, No. 3 Foundry	13.75	@	14.25
Gray Forge	13.25	@	13.75
White and Mottled, different grades	12.75	@	13.25
Silver Gray, different grades	13.25	@	13.75
Southern Charcoal, No. 1 Foundry	16.50	@	17.00
" " No. 1 Mill	15.00	@	15.50
Southern Car-Wheel, standard brands	22.00	@	23.00
Southern Car-Wheel, other brands	18.25	@	19.75
Hanging Rock Coke, No. 1 Foundry	15.75	@	16.25
Hanging Rock Charcoal, No. 1 Foundry	19.75	@	21.25
Hanging Rock, Cold Blast	21.00	@	23.00

Geo. H. Hull & Co. have been appointed exclusive agents for the United States for the Lady Ensley Furnace, at Sheffield, Ala. The furnace is using all Brown Hematite Ore and Pocahontas Coke. The Iron produced so far has been of superior quality.

Cincinnati.

Office of *The Iron Age*, Fourth and Main Sts.,
CINCINNATI, August 5, 1889.

There has been no change of importance in the condition of the local market for Pig-Iron during the week just closed. The aggregate sales have been fully equal to, if not larger than, those of the preceding week, but transactions have been less distributed among local firms. This has been due rather to less disposition to sell, however, than to a lack of demand. A strong tone has prevailed, but there has been no advance in prices. Sales have been largely of Mill Iron, mainly Gray Forge, but Mottled has sold more readily. Car-Wheel Iron has not sold in large amounts, but there has been a good demand and orders for considerable-sized lots previously placed have been increased; this applies to Southern and Lake Superior Iron. Silvery Iron has been very scarce and wanted. Among the sales were 1500 tons Southern Neutral Coke (Gray Forge) at $13.25, 6000 tons do., in 100-ton lots, at the same rate, cash, for August, September and October delivery. Most of these sales were made to Pittsburgh, destined to Muck-Bar; 1000 tons Mottled sold at $12.50, and smaller amounts at $12.75, spot cash. The following are approximate prices current here at the close for cash, f.o.b.:

Foundry.			
Southern Coke, No. 1	$15.25	@	$15.50
Southern Coke, No. 2	14.50	@	14.75
Southern Coke, No. 3	13.75	@	14.00
Ohio Soft Stone Coal, No. 1	16.00	@	16.50
Ohio Soft Stone Coal, No. 2	15.00	@	15.50
Mahoning and Shenango Valley	16.00	@	16.50
Hanging Rock Charcoal, No. 1	20.00	@	22.00
Hanging Rock Charcoal, No. 2	19.00	@	21.50
Tennessee and Alabama Charcoal, No. 1	17.50	@	18.50
Tennessee and Alabama Charcoal, No. 2	16.50	@	17.50
Forge.			
Gray Forge	13.25	@	13.50
Mottled Neutral Coke	12.50	@	12.75
Cold Short	.....	@	13.00
Car-Wheel and Malleable Irons.			
Southern Car-Wheel	23.00	@	24.00
Hanging Rock, Cold Blast	22.00	@	25.00
Lake Superior Car-Wheel and Malleable	20.00	@	20.50

Manufactured Iron.—No new features have been developed, and the volume of business has increased but little. A firm one has prevailed, however, for all kinds.

Old Material.—There has been a more active demand for Old Rails, and under light offerings a stronger tone has prevailed. There are buyers at $22.50, cash, but holders ask $23. Old Wheels have remained quiet but firm, and are quotable at $18, cash, Cincinnati.

Nails.—The market has ruled steady, with a fair jobbing demand and a better movement from the mills. Iron and Steel Nails, 12d to 40d, sell at $1.85 @ $1.90 ℔ keg, with 10¢ rebate in carload lots, at the mills. Steel Wire Nails sell at $2.40 for 60d.

Detroit.

WILLIAM F. JARVIS & Co., under date of August 5, 1889, say: August is usually a quiet month; especially is this the case among Lake Superior Charcoal Iron-makers, as the majority of Agricultural and Malleable Iron manufacturers have placed their orders by this time for from six to eight months ahead. However, this month promises better than usual, as there is more inquiry from outside buyers, and also an inclination on the part of some large users to increase their purchases. While the makers of Lake Superior Charcoal are holding firm at prices of the past month, several brands of Coke Iron are being held at an advance of 50¢, and a few orders for medium-sized quantities have been taken at the higher prices, but this is only where users prefer to pay a little premium rather than change their mixture. Southern Forge Irons are in better demand and furnaces are refusing orders at an advance, as they are unable to make the deliveries asked, on account of their product being already taken. With the market firm we quote as follows:

Lake Superior Charcoal, all numbers	$19.00 @ $19.50
Lake Superior Coke, all ore	18.00 @ 18.50
Lake Superior Coke, cinder mixed	17.50 @ 18.00
Standard Ohio Black Band	17.50 @ 18.50
Southern No. 1	16.50 @ 17.00
Southern Gray Forge	15.00 @ 15.50
Southern Silvery	16.00 @ 16.50
Jackson County (Ohio) Silvery	18.00 @ 18.50
Old Wheels	18.00 @ 19.00

Cleveland.

CLEVELAND, August 5, 1889.

Iron Ore.—The amount of ore received at lower lake ports during the past week exceeds the record for any preceeding seven days since the opening of the Lake Superior mines. Over 266,000 tons of ore were unloaded on the docks at Cleveland, Ashtabula, Fairport, Sandusky, Lorain, Toledo, Erie and Buffalo, making the total receipts to date 3,300,000 tons, an amount over 1,500,000 tons greater than the aggregate shipments at a corresponding period in 1888. The opinion is now generally entertained that the amount of Ore brought down from the Lake Superior district by boats during the navigation season of 1889 will reach, if it does not exceed, 6,500,000 tons and that of this amount not over 500,000 tons will have been unsold. The most remarkable feature of the Ore market, since it was opened by the heavy purchases of the Chicago consolidated Steel companies, has been the persistent demand of the furnace men for new Ore in the presence of a Pig-Iron market dull and depressed enough to discourage almost any body of business men in the country. Up to August 1, 1888, not over 2,000,000 tons of Ore had been engaged by the furnace men, although fair prices were being paid for Pig-Iron. The sales for the present year closely approximate 5,000,000 tons, an indication of the faith of the buyers in an early improvement in the Iron market generally. The sales for the past week have been confined to rather small orders, as a rule, although a few 5000 and 10,000 ton blocks were disposed of. Another sale of Republic Ore at $5.75 is reported, and a fair order for Aurora was disposed of for $5.25, f.o.b. vessels, Cleveland. It is believed that it would be impossible to scrape together over 100,000 tons of Non-Bessemer of every variety. There is still no change in lake freights, and almost every available vessel on the lower lakes is rushing forward to accept tonnage at the prevailing carrying prices.

Pig-Iron.—The demand for both Forge and Foundry Irons is remarkable, and buyers willingly pay the 50¢ advance asked this week. Orders were placed during the week for 12,000 tons of Mill Iron at prices from 50¢ to $1 above the quotations prevailing a month ago. Bessemer Iron has advanced to $17.50 @ $18, and is selling freely. A feature of the market is the seeming anxiety of the consumers to buy for delivery in the far future the very best Iron to be obtained in the market.

Manufactured Iron.—Bar-Iron is in excellent demand at 1.70¢ from store and 1.65¢ in carload lots. Sheets are scarce and are bringing somewhat fancy prices, No. 24 selling for 2.85¢ and No. 27 for 3.10¢.

Scrap Iron.—The advance in old American Rails continues, and $22.50 @ $23 are the present quotations, with a sale or two reported at the latter figure. Selected Axles are bringing $24.50.

New York.

Office of *The Iron Age*, 66 and 68 Duane street, NEW YORK, August 6, 1889.

Pig-Iron.—The transactions of the week have been confined to small lots. Inquiries for fair-sized quantities are being received from consumers, but they are slow to place their orders, evidently hoping or fearing that something will turn up to enable them to buy at lower prices than are now current. Meanwhile prices continue to harden, the advance thus far having been by 25¢ stages, and it now appears to be quite difficult to find sellers to book any orders of consequence at last week's quotations. The range of the market seems to be about as follows: No. 1 Anthracite Foundry, at tide-water, $17 @ $18; No. 2, $16 @ $17; Gray Forge, $15.25 @ $15.75; Southern No. 1 Coke Foundry, delivered at New York, $16.75 @ $17.25; No. 2, $16 @ $16.50; No 3, 15.50 @ $16; Gray Forge, $15.

Scotch Pig.—Prices here are very low when compared with quotations on the other side of the Atlantic, and taking into consideration the expense of getting Iron into this market. But even then buyers are not inclined to take hold, although inquiries are abundant, which indicates a disposition to purchase this quality of Iron if it could be had at a satisfactory price. We quote: Eglinton, $19 @ $19.50; Dalmellington, $19.50 @ $20; Langloan, $21; Shotts, $21 @ $21 25; Summerlee and Coltness, $21.50.

Spiegeleisen.—More business is reported, but particulars are wanting. Prices are understood to have been close to $29 for 20 %, $34.50 for 30 % and $60 for 80 % Ferro. Importers quote 20 % at $29 @ $29.50 and 30 % at $34.50 @ $34.75.

Wire-Rods.—Foreign Rods are still nominally quoted at $43, but no sales have been made for a long time. Domestic Rods bring $41 at Western mills, making them cost about $43 delivered at Eastern points of consumption.

Steel Billets.—The demand is very good, but a decided scarcity exists. Works which were anxiously soliciting orders but a short time since are now refusing to quote, having their capacity fully engaged for as long ahead as they care to sell. Western Billets can be laid down in this vicinity at about $30.50.

Finished Iron and Steel.—Trade was active in most lines during the past week, with Plates, Beams and other Structural shapes preponderating. Car-building is improving in activity, and is having its effect on the Bar trade. The West, however, is coming into this market now with decided energy, favored by the low freight rate of 12¢ ℔ 100 pounds from Pittsburgh and Youngstown, as against 10¢ from Eastern Pennsylvania mills. Much trade has been diverted to Western mills in the past two weeks for this reason. We quote as follows for delivery on dock: Sheared Plates, 2.15¢ @ 2.20¢; Universal Mill Plates, 2.20¢ @ 2.25¢; Angles, 2.15¢ @ 2.20¢; Tees, 2.5¢ @ 2.6¢; Beams and Channels, 2.8¢. Tank Iron, 2.15¢ @ 2.20¢; Shell, 2.4¢ @ 2.5¢; Steel Tank, 2.3¢; Shell, 2.5¢; Flange, 2.75¢ @ 2.8¢; Fire-Box, 3.25¢ @ 4¢; Common Bar-Iron, 1.6¢ @ 1.65¢; Medium, 1.7¢; Refined, 1.8¢ @ 2¢.

Merchant Steel.—Although July did not appear to be a particularly active month at the time, yet dealers find on referring to their records that it was considerably better than July of last year. This is an encouraging condition of affairs. The demand at present is very fair for the season. Quotations are as follows: Tool Steel, good brands, in large lots, 7¢ @ 7½; specials, 12¢ @ 35¢; Crucible Spring, 3½¢ @ 4¢; good Open-Hearth Machinery, 2.30¢ @ 2½¢; Bessemer ditto, 2¢ @ 2¼¢; Open Hearth Spring, 2¼¢ @ 2½¢; Tire 2.15¢; Toe-Calk, 2¼¢; Sheet, 6½¢, 8¢ and 10¢.

Steel Rails.—Negotiations are pending for considerable quantities, but as far as could be ascertained no business of any magnitude has culminated since our last report. Probably 1000 tons would cover the entire sales of the week in this market. Prices are firmly held at $28 at mill.

Track Supplies.—A good volume of business has been experienced in this branch of trade, but manufacturers are very much dissatisfied with the prices ruling. Quotations are still very low, as follows: Iron Fish-Plates, 1.80¢ at mill; Steel Fish-Plates, 1.75¢; Square-Nut Bolts, 2.70¢; Hexagon-Nut Bolts, 2.90¢ and 3¢, according to quality, and Spikes, 1.95¢ and 2¢.

Old Material.—A sale of 3000 tons of Foreign Old Iron T-Rails was made at about $23, New York delivery. Another sale of 2500 tons of American Iron Rails was made on private terms, delivered at a Western mill. Pittsburgh consumers are now offering $24 for Old Iron Rails, delivered there. The market here seems to be about $23. Of Old Steel Rails no sales have transpired, but $17.50 @ $18, Jersey City, is asked for them. Old Car Wheels are quiet, with $19 @ $20 quoted. Sales of No. 1 Wrought Scrap have been made at $21, Jersey City.

Financial.

There is no longer any special concern felt in banking circles respecting the financial future. During the week careful inquiry shows that there is no cause for anxiety, despite the recent large exports of gold and the expected heavy call for money to aid in moving the crops. It is true that the amount of bank loans is some $30,000,000 larger than they were a year ago, while the holdings of gold are about $13,000,000 less. But it is argued that the amount of capital available at the present time has increased and that the accommodation of the public is only proportioned to these enlarged resources.

President H. W. Cannon, of the Chase National Bank, formerly Comptroller of the Currency, is reported as saying that there is every indication of a healthy condition of the money market, although rates for call and time money may advance somewhat in the early autumn. In case of any stringency he had no doubt that blocks of United States bonds would be offered to the Government, and very likely the Secretary of the Treasury may increase the price he pays for 4 per cents to a point that will net the Government, say, 2 % per annum. Moreover, money is easily obtained from Europe on account of our more intimate relations. The balance of exchange does not now appear unfavorable to New York, and from present indications shipments of gold to Europe have ceased for this season. Russell Sage expresses the opinion that before the year is out some of the gold lately sent to Europe will be returned. Besides, as stated by President Wale, of the Atlantic Trust Company, the West is every year becoming more capable of taking care of itself financially, and the establishment of reserve centers there makes moving of the crops a much easier task for New York bankers than formerly. All that is necessary to avoid trouble, President Olcott, of the Central Trust Company, said, is to be careful concerning the extension of time loans. President Jordan, of the Western National, President Tappan, of the Gallatin, and others coincided with these views. Another weighty consideration is the fact that the cotton crop is abundant and about three weeks earlier than last year, so that bankers are already beginning to anticipate cotton exchange. Closely related to the general subject is the favorable crop outlook. At Minneapolis new wheat has begun to arrive and the State will produce more than the average. It is estimated by the Kansas State authorities that the crops of that State will this year realize not less than $90,000,000. The Iowa State Agricultural Bureau reports that the corn crop in that State promises to exceed the yield of any former year. Oats are the heaviest crop ever harvested. Wheat will yield a full crop. Good reports come from Wisconsin and better still from Iowa. The Dakotas alone seem to have suffered heavily. The weekly Government report says the weather has been favorable for harvesting, but unfavorable for corn. Cotton is improved throughout the cotton region. The sugar crop will commence coming in about the last of September. New Orleans papers remarks that as the harvesting season approaches there is more assurance that 1889 will be a profitable and plentiful year.

The stock market was dull with moderate trading until Monday, when stocks became more active and generally strong. Reading and Northwest led the advance. The grangers were bought on favorable news from the West regarding the railroad situation and good reports from the crops. The movements of traffic east of Chicago also feel the stimulus. Last week 52,812 tons of flour, grain and provisions left Chicago by rail eastbound, against 43,145 tons for the same week last year. The July reports of railway earnings uniformly show increases.

On Friday the tone was well sustained, with active trading in Reading, St. Paul and Northwest. It was claimed as a favorable feature that the tendency all over the country is toward railroad consolidation, and particularly so in the case of roads in which a Vanderbilt interest is prominent. The Vanderbilts have virtual control of St. Paul, as well of Northwest; they control the Chesapeake and Ohio, the three C's, several Northern trunk lines and, lastly, the Beech Creek.

Government bonds were steady. Secretary Windom has directed that all the bonds purchased by the Government since July 1 be applied to the sinking fund until the requirements for the current fiscal year, estimated at $47,000,000, are met. The amount already applied to this purpose is $3,963,450, of which all but $15,500 was in 4½ % bonds. Quotations are as follows:

U. S. 4½s, 1891, registered	105¾
U. S. 4½s, 1891, coupon	106⅞
U. S. 4s, 1907, registered	128½
U. S. 4s, 1907, coupon	128½
U. S. currency 6s	118

The weekly bank statement was favorable, a gain of $1,127,000 being reported in reserve, which brings the surplus up to $8,126,175 above legal requirements. There were only $700,000 exports of gold during the week, while the banks gained both from the movement of currency and the operations of the Sub-Treasury. Loans were contracted $3,736,700 and deposits $2,810,400, while cash increased $424,500. Time money is a little dearer and 5 % for three and four months and 5 @ 5½ % for six months. On pledge of trust stocks the rate is 6 % for four months. The offerings of commercial paper are a little in excess of the demand. The best double-name paper is quoted at 4 @ 5 % and prime single-name at 5 @ 6 %.

The bank exchanges in July at 37 cities aggregated $4,608,442,911, as compared with $3,811,042,592 in July 1888, an increase of 21 %. Excluding New York City's total, the July increase amounts to 16 %. For seven months of 1889 the bank clearings at 37 cities were 15 % more than for the corresponding months of 1888, showing great activity in general business.

The Treasury statements for July show that the public debt has increased $1,017,311 since June 30. The total interest-bearing debt is now $889,868,302. The total debt, less cash in the Treasury, amounts to $1,077,663,932. The amount of the 4½s still outstanding has been reduced to $135,044,950. The surplus is now $65,857,090—a reduction of nearly $6,000,000 during the month.

Figures compiled from the reports show that the aggregate of the total resources of New York City savings-banks is $15,460,000 greater than they were on July 1, 1888 The Brooklyn banks have a gain of nearly $5,000,000, and the banks of the abutting counties a decrease of $200,000. This gives a clear gain of $20,000,000.

Movements in general merchandise have been stronger and of a more general character. In groceries coffee is about the only commodity moving freely from first hands. Dry goods jobbers anticipate a full business next week. Provisions are firmer on light receipts throughout the West. Breadstuffs are stronger on advices from Europe, whose crop reports are less favorable. Total exports for the week $6,764,000 The posted rates for bankers' sterling are $4.86, 60 day, and $4.88 for sight. The market is dull and steady.

Imports.

Hardware, Machinery, &c.

Ascencio & Cossio, Mach'y pkge., 1
Buttenberg, E., Mach'y, cs., 2
Boker, Hermann & Co., Mdse., cs., 19; Hardware, pgs., 9; Arms, cs., 59
Clark Thread Co., Mach'y, cs., 82
Folsom Arms Co., H. & D., Arms, cs., 5
Gurney, Fred B., Mdse., cs., 7
Graef Cutlery Company, Cutlery, cs., 3
Hartley & Graham, Mdse., cs., 12; Arms, cs., 84
Lau, J. H. & Co., Arms, cs., 5
Morris, L. W. & Son, Iron-Ware, cse., 1
Merch. Desp. Co., Arms, cs., 22
Schoverling, Daly & Gales, Arms, cs., 11
Sheldon, G. W. & Co., Arms, cs., 10
Sanderson & Sons, Mach'y, pcs. and pgs., 29
Schwartzenbach, Huber & Co., Mach'y, cs., 9
Sacks & Richmond, Nails, cks., 13
Verlemann, H., Arms, cs., 22
Wiebusch & Hilger, Lim., Hardware, pgs., 19; Arms, cs., 38
Windmuller, L. & Co., Gun-Barrels, cs., 3
Witte, John G. & Bro., Cutlery, cs., 5
Wright, Peter, Mach'y, cse., 1
Order, Mach'y, pgs., 17

Metal Market.

Copper.—Spot Copper improved for the week in London from £41. 15/ to £42. 12/6 last night, and futures from £41 to £41. 15/, the sales aggregating 900 tons. The visible supply in England and France on the 1st inst. is shown to have been 108,000 tons, against 79,000 same date last year, the reduction in July having been 3000 tons, which certainly is little enough. It appears that at the meeting of the representatives of mining companies held on Thursday of last week it was agreed to continue the combination on the basis of 12¢ for Lake, 11¾¢ Arizona and 11¢ casting brands. The trade appear to lack faith in the ability of the combination to maintain prices on the basis above quoted, and proceed with the utmost caution, restricting purchases to the absolutely indispensable; hence nothing has transpired since beyond a small jobbing business at 12⅛¢ @ 12¼¢. The following was wired from Boston on the 5th inst.: "The annual statement of the assets and liabilities, which is the only report that the Calumet and Hecla Mining Company make to its stockholders, shows that on April 30, 1889, the total assets were $2,598,104, against $2,513,681 on the same date last year, including the Copper on hand figured at 10¢ ℔ lb, against 14¢ ℔ lb last year. The liabilities are $736,267, against $559,772, leaving a balance of assets of $1,861,837, against $1,953,909, a decrease of $92,072." The export of Ingot-Copper from the United States during the fiscal year ended June 30 last has been 14,334,043 lb, against 25,303,337 the previous year. Copper advanced in London this morning to £44, spot, and £43, futures, under the stimulus of an increasing consumptive demand. Closing prices on the Metal Exchange to-day were 11.75¢ bid and 12.25¢ asked.

Tin.—The price of spot Tin gave way in London from £89. 7/6 at the time of our last report to £88. 17/6 last night, and futures from £89. 15/ to £89. 12/6, sales figuring up 200 tons. Statistics on the 1st inst. show a decrease for the month in the visible supply in Europe and America of 1200 tons, the same being reduced to 12,550 tons. This favorable showing—together with the moderate stocks on this side—has lent a certain degree of strength to the metal among us at current quotations, without, however, leading to much doing. Some November Tin was sold at 19.90¢, spot meanwhile being held at 19.85¢ and October at 19.90¢. Messrs. Gilfillan, Wood & Co., Singapore, June 26, express themselves to the following effect: "There is no stock left, arrivals being small, but according to dealers' reports large arrivals may be looked for next month; but unless a spurt be made in mining we are inclined to doubt the truth of this." During the first five months the Straits Settlements shipped to the United States 57,069 piculs, against 10,183 same time last year; 32,139 in 1887; 26,067 in 1886; 16,051 in 1885 and 24,969 in 1884—in other words, the American market has been attracting a Tin supply thence greater than ever. During the fiscal year ended June 30 last the import of Tin into the United States was 33,877,287 lb, as compared with 31,690,583 the previous year. The quotation for spot Straits this morning is 19⅞¢, at which it remains very firm. Closing quotations on the Exchange to-day were 19.90¢ bid and 20.15¢ asked. *Tin-Plates.*—Tin-Plates have been but moderately sought for since our last report, and close dull, while the market in England is again slightly better. We quote large lines, ordinary brands, ℔ box: Siemens-Martin Steel, Charcoal finish, $4.75 @ $5.50; Coke finish, $4.60 @ $4.65; Ternes, $4.12 @ $4.30; Coke Tins, $4.22½ @ $4.32½, and Wasters $4.05 @ $4.10.

The import of Tin-Plates into the United States during the fiscal year ended June 30 last has been 735,737,990 lb, against 634,944,945 lb during the corresponding period of the previous year.

Lead—Has relapsed into dullness from the activity of last week, sales not exceeding 200 tons in a jobbing way, 3.95¢ down to 3.85¢, which is the closing figure. According to present indications the Ore question will be left for Congress to decide. Meanwhile the Western markets are above New York parity. Closing quotations on the Exchange to-day are 3.85¢ bid and 3.95¢ asked.

Spelter.—Not much activity has developed since our last report, but Common Domestic remains firm at 5.15¢ nominally, while Silesian, which has now risen to £20. 5/ in London, cannot be sold for less than 6½¢. Accounts from Silesia are exceedingly strong.

Antimony.—While there is a continued brisk demand, the stock on this side is virtually exhausted, and it is difficult to get any supplies from England, even at the rates ruling here, which are 18¢ for Cookson's and 16¢ @ 16½¢ for Hallett's.

Coal Market.

The expected revival in the Anthracite Coal trade is still to come, the market seeming to be overstocked, with large amounts accumulated at tide-water and at interior points. Under these circumstances prices realized are below the schedule, with exceptional instances, and it is affirmed that the bulk of current deliveries is based on prices no higher than those of May. It is not surprising, therefore, that there is a diversity of views with reference to the proposed advance to be considered at the meeting arranged for August 14. A president of one of the leading companies predicts an advance of 15¢ @ 25¢ ₩ ton, but others question the expediency of any action not warranted by the actual condition of the market. The production for the week ending August 3 is reported as follows:

	Week.	Year.
Philadelphia & Reading Co..	183,000	3,784,908
Central R. R. of N. J.....	142,919	3,291,120
Lehigh Valley R. R. Co.....	180,513	3,614,641
D., L. & W. R. R. Co.....	148,322	2,776,937
Del. & Hud. Canal Co.....	100,689	2,247,058
Pennsylvania Coal Co.....	40,000	698,275
Pennsylvania Railroad Co...	70,000	1,997,112
Totals.....	865,443	18,400,051
Erie (six months)	.....	500,000

A comparison with the corresponding week last year shows an increased product of 100,000 tons, but since January 1 the aggregate is short somewhere between 500,000 and 900,000 tons, according to different estimates. Quotations are: Free-Burning, f.o.b., Broken, $3.90; Egg and Chestnut, $4.15; Stove, $4.40; Reading Hard White-Ash Lump at Port Liberty, $4.25. Report says Coal can be bought as low as $4 on board.

Bituminous Coal is in good demand and supplies are restricted by the lack of cars. Cumberland shipments last week were 66,427 tons; Clearfield, 66,689 tons; Beech Creek, 57,247 tons.

There is some apprehension lest the completion of the purchase of the Beech Creek Railroad and Coal property by the Vanderbilts shall lead the Reading Railroad into materially greater competition in the Anthracite Coal territory.

A charter has been granted to the South Easton and Phillipsburg Railroad Company to connect the Lehigh and Susquehanna division of the New Jersey Central road with the Belvidere and Delaware division of the Pennsylvania Railroad at Phillipsburg. The Lehigh and Hudson which has been leased by the Central, will give a line to Poughkeepsie bridge and so into New England.

The Ohio Inspector of Mines reports the amount of Coal mined in Ohio for 1888 at 10,297,608 tons. This is an increase of more than 600,000 tons over 1887.

British Iron and Metal Markets.

[*Special Cable Dispatch to The Iron Age.*]

LONDON, WEDNESDAY, August 7, 1889.

Speculation in Block Tin has been less active and only a small business with consumers has been done. The reduced shipments from the Straits during July, it is now stated, were due chiefly to want of cargo room, and the belief is that the August shipments will be much heavier. Hence the smaller demand and reaction in prices in this market.

Operations in Copper have been narrow as far as speculators are concerned, and as the wants of smelters are well supplied there is little demand from the latter quarter. The July importations of American Copper and furnace material were the largest for many months. There has been a good trade latterly in Manufactured Copper for India account. Sales of furnace material the last half of July were heavy, including 600 tons Montana, private terms; 800 tons do. at 8/ and 100 tons do. 8/1½, all to arrive in Liverpool. To-day cash Merchant-Bar warrants were scarce and brought as high as £44.

There has been no radical change in the Tin-Plate market. Business has continued moderate, but makers are confident and expect an advance. About £6 more is generally asked. The Glanamman company are erecting two new mills.

Outside speculation in Pig-Iron warrents has been small, but the market continues very strong and sales have been made at a further advance. The "bear" party have covered considerable "short" sales and seem to look upon the rise as genuine. A large "bull" account was opened Monday, with little indecision to operate at market prices. It is reported that merchants are placing orders with more reluctance. Makers' brands of Scotch, with few exceptions, stand as quoted last week, but Middlesborough Pig and Hematites are 6d higher.

Manufactured Iron has been even more active than during the preceding week, and prices show an advancing tendency. On Black Sheets 10/ rise has been paid, and there is 5/ advance on Common Staffordshire and Welsh Bars. Steel of all descriptions is firm, with demand good for most descriptions.

It is stated that the Earl of Dudley proposes to start up Steel-works in Staffordshire.

Old Material has found more ready sale, and the market is considerably firmer.

Scotch Pig.—The demand has continued active and prices are strong, with a further advance on some brands.

No. 1 Coltness,	f.o.b.	Glasgow	57/6
No. 1 Summerlee,	"	"	57/6
No. 1 Gartsherrie.	"	"	55/6
No. 1 Langloan,	"	"	56/6
No. 1 Carnbroe,	"	"	49/
No. 1 Shotts,	"	at Leith.....	55/6
No. 1 Glengarnock,	"	Ardrossan.	54/
No. 1 Dalmellington,	"	"	48/
No. 1 Eglinton,	"	"	46/6

Steamer freights, Glasgow to New York, 4/; Liverpool to New York, 10/.

Cleveland Pig.—Makers hold for 6d advance, but the higher prices check sales. No. 3 Middlesborough quoted 42/6, prompt.

Bessemer Pig.—Business has been done at 6d advance and the demand continues active. West Coast brands, mixed numbers, 52/, f.o.b. shipping point.

Spiegeleisen.—There has been a more active business, but no change in prices. English 20 % quoted 80/, f.o.b. at N. W. England shipping point.

Steel Rails.—A fairly active market and prices very firm. Heavy sections quoted at £4. 17/6 and light sections £5 @ £5. 5/, f.o.b. at N. W. England shipping point.

Steel Blooms.—Only a moderate demand, but prices firmly held. We quote £4. 7/6 for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—The market very firm and fairly active. Bessemer, 2½ x 2½ inch, £4. 12/6, f.o.b. at N. W. England shipping point.

Steel Slabs.—Demand continues moderate, but prices are firm. Bessemer, £4. 15/, f.o.b. at N. W. England shipping point.

Old Rails.—There has been a fairly active business at steady prices. Tees quoted at £3. 2/6 @ £3. 5/, and Double Heads £3. 10/ @ £3. 12/6, c.i.f., New York.

Scrap-Iron.—Quite a good business doing, and prices firmer. Heavy Wrought quoted £2. 5/ @ £2. 7/6, f.o.b.

Crop Ends.—A fairly active demand and prices firm. Bessemer quoted £2. 12/6 @ £2. 15/, f.o.b.

Tin-Plate.—Higher prices generally asked and the demand better the past few days. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade.....	...15/9 @	....
IC Bessemer Steel, Coke finish....	.. 14/ @	14/3
IC Siemens " " "	..14/3 @	14/6
IC Coke, B. V. grade	13/6 @	13/9
Charcoal Terne, Dean grade..	.....12/6 @	....

Manufactured Iron.—There is a good business in this line and prices are strong. We quote, f. o. b. Liverpool:

	£	s.	d.		£	s.	d.
Staff. Marked Bars		...		@	8	10	0
" Common "	6	15	0	@	6	17	6
Staff. Bl'k Sheet, singles....		....		@	8	5	0
Welsh Bars (f.o.b. Wales)...	6	7	6	@	6	10	0

Copper.—The market very firm, particularly for cash Bars and Best Selected. To-day's prices for Bars were £44, spot; £42. 10/, three months' futures. Best Selected, £48.

Tin.—The trading only fair in volume. Straits quoted at £88. 17/6, spot, and £89. 12/6 for three months' futures.

Lead.—Not much doing, but prices rather firmer. Quoted £12. 10/ for Soft Spanish.

Spelter.—Prices active, higher and the demand still active. Quoted at £20 3/6 for ordinary Silesian.

Foreign Markets.

EQUIVALENTS.

	Cents.
Franc, Peseta or Lira.....	19.3
Florin (Netherlands).....	40.2
Florin (Austria).....	35.9
Milreis (Portugal).....	$1.08.
Milreis (Brazil).....	54.6
Mark (Germany)	23.8
	Pounds
Kilogram	2.205
Picul.....	134.

EAST INDIES.

COLOMBO, CEYLON, June 20, 1889.—*Plumbago.*—There is a temporary scarcity. We quote ₩ ton in rupees: Large lumps, 145 @ 170; ordinary lumps, 125 @ 160; Chips, 80 @ 95, and Dust, 40 @ 65. Following are the shipments made since October 1, in cwts.: To England, 124,922; to Venice, 102; to Ham-

burg, 6210; to Antwerp, 6904, and to Bremen, 1254; to Holland, 437; to India, 139; to Australia, 287, and to the United States, 103,974, together 244,229, against 182,310 in 1888, 182,-016 in 1887, and 137,573 in 1886. *Coir Yarn.*—Nos. 1 to 4 may be quoted 7 @ 13 rupees ₱ cwt. *Exchange.*—Six months' sight credits, 1/4¼.—*Volkart Bros., Ceylon and Malabar Coast, through their agent in New York, Mr. John W. Greene, 82 Wall street*

MANILA, July 29, 1889.—*Hemp.*—There are buyers at $13.50 ₱ picul, against $9.50 same date last year, equaling ₱ ton, cost and freight, £44. 7/6, against £32. Clearances for the United States since January 1 amount to 135,000 bales, against 99,000 in 1888; loading for do., 8000, against 3000; cleared for England since January 1, 165,000 bales, against 205,000; loading for ditto, 15,000, against 15,000; cleared for all other ports, 27,000, against 45,000; receipts at all ports since last cable, 12,000, against 9000; since January 1, 343,000 bales, against 337,000 in 1888 and 266,000 in 1887. *Freight.*—$7.50, against $6. *Exchange.*—Six months' sight in London, 3/5¾, against 3/5⅝.—*Ker & Co., per cable direct to their agent in New York, Mr. Charles Nordhaus, 89 Water street.*

CHINA.

HONG-KONG, June 28, 1889.—*Petroleum.*—The market is quiet. Quotation for Comet Oil is $1.90 @ $1.95 ₱ case; 40,000 cases are reported sold to arrive at $1.87 ₱ case, which shows that notwithstanding heavy stocks and supplies afloat speculative inquiry is reviving. Clearances continue in a satisfactory manner. *Vermilion* may be quoted $44.45 ₱ box of 50 catties.—*Arnhold, Karberg & Co.*

SPAIN.

BILBAO, July 13, 1889.—*Iron Ore*—Dealings during the week have been confined to a few cargoes Rubio, few large contracts being usually made at this time of the year. Prices remain firmly upheld at 7/ @ 7/4 for Superior Rubios, and 8/3 @ 8/6 Campanil. The amount shipped was considerable, say 94,978 tons, so that since January 1 the total now amounts to 2,149,724 tons, against 2,064,570 in 1888 and 2,430,300 in 1887. *Pig-Iron.*—The exports reached during the week 2603 tons, and the coastwise shipments 617. Ore freights are weak.—*Bilbao Maritimo y Comercial.*

ITALY.

ROME, July 25, 1889.—*Iron*—An English company has been formed to work the Iron mines recently discovered in the Province of Pisa situate but 5 k.m. from the sea-shore. The stock capital of the company is £10,000. Copper and lead are also found in that mining district.—*Reforma.*

ROUMANIA.

BUCHAREST, July 23, 1889.—*Petroleum*—A company on shares has been formed in this city with a stock capital of 1,500,000 francs, to be eventually increased to 5,000,000 francs, for the purpose of developing the resources of the Roumanian Petroleum region on the properties it owns, and carry on a general Petroleum industry and trade in this city.—*Opinione.*

RUSSIA.

BAKU, July 24, 1889.—*Petroleum*—The Robel Naptha Company has produced its ballance-sheet for the year 1888, in which it cleared profits to the amount of 2,797,039 rubles, enabling it to declare a 6% dividend on a stock capital of 15,000,000 rubles, and a bonded debt of 3,027,057 rubles, after liberally writing off and providing for the sinking fund under provisions of its statutes. The Russian Petroleum producers intend building tanks at Trom-Severin for the purpose of facilitating the export to Austria and Servia.—*Journal de St. Petersbourg.*

GERMANY.

HAMBURG, July 27, 1889.—*Iron.*—In Rhenish-Westphalia the stock of Pig does not increase to speak of, not exceeding 44,166 tons as it does, against 43,418 a month ago. The general demand remains active. Some 7000 tons Spiegel were bought to go to the United States, the percentage of Manganese being 20. Stocks are now reduced to 2000 tons. The demand being good, both at home and for export, the tendency remains upward, the present quotation for 10 to 12% being 68 marks. Thomas continues in lively request. The stock of Bessemer has run very low. The quotation for Prime Forge Pig is 60.50 @ 63; for Foundry ditto, 57 @ 63; for Common Forge, 47 @ 48; Thomas, 47 @ 48; White Steel, 62 @ 63; German Bessemer, 57 @ 58; English ditto, 49/6 @ 49/9; White Luxembourg, 38 @ 40; Gray, 40 @ 42. The demand for Finished Iron is such, home and export, that some makers decline orders; many are sold out to the close of the year. The inquiry extends to all descriptions. The only branch still in an unsatisfactory condition is the Wire branch. The quotation at Dortmund for Wire Rods is 125 @ 130; Steel Rails, 128 @ 130; ditto for mines, 120. The Iron industry of Upper Silesia is in a highly flourishing state. *Metals.*—This may also be said of the Spelter industry, the domestic consumption and export of this metal and manufactures being such that it is difficult for mines and works to supply the same fully. —*Borsenhalle.*

BELGIUM.

BRUSSELS, July 27, 1889.—*Iron.*—The rise in Coal and Coke keeps the Iron market stiff and advancing; it has had a similar effect on Steel Rails. At the late adjudication of the latter to supply the Government the French Rail mills abstained from handing in any tenders, because the business did not seem inviting enough to them now that it costs so much more to make them. The renewal of contracts for Forge Pig in Belgium cannot well take place under 5 francs ₱ 100 kg.—*Moniteur des Intérêts Matériels.*

Wave Motor.—There is now in use at Ocean Grove, N. J., a so-called wave motor, which, if we remember rightly, has been employed in a somewhat modified form both on the Pacific Coast and on the St. Lawrence River. The device uses the wave motion, and consists of a swinging leaf or blade hung perpendicularly and with its broad side parallel with the shore line. The incoming wave strikes the blade, gives it an impulse toward the shore, and thereby operates the pump plunger, which is attached to the blade After the wave has passed the blade swings back to its original vertical position. The motor at Ocean Grove consists of a series of swinging gates, secured at their tops to a steel rod resting in suitable bearings. These are mounted in a crib-work built a little from the shore. Each gate is 12 feet long, and it was found that the force acting to move it shoreward was about 500 pounds per foot in a calm and 800 pounds in heavy surf. Such a gate placed on the shore of the ocean would be continually operated, since the wave motion is always present.

To Test Coil Boilers.—A board of which Chief Engineer Charles H. Loring is president has been appointed for the purpose of examination and test of coil boilers. The other members of the board are Chief Engineer William A. Windsor and Past Assistant Engineers J. J. Barry and C. P. Howell. The members of the board are now on duty at New York, but when the boilers in question are ready will meet at such time and place as the president of the board may direct. Under date of August 2, 1888, the Department invited proposals for furnishing coil boilers for the navy. The boilers offered by Charles Ward, Charleston, W. Va.; William Cowles, New York; Frank B. King, Washington, and the Hohenstein Mfg. Company, Newark, N. J, are considered as possessing sufficient merit to warrant the Department in testing them. Any of the parties desiring their boilers tested must furnish the boilers and prepare them for test at their own expense, either at their own works or at such other places as may be approved by the Department. They have been requested to communicate with Chief Engineer Loring, at the Navy Yard, New York, on the subject.

New Navy-Yard Tugs.—At the Navy Department, on the 1st inst., bids were opened for furnishing or constructing four steam tug-boats to be used at the navy-yards in Washington, Mare Island, San Francisco, and League Island, Philadelphia—two being for the latter place. The tugs for the Washington and League Island yards are to be 90 to 95 feet long; the Mare Island boat 115 feet long. The bidders and their bids were as follows: For Washington Navy Yard tug—A. Booth Packing Company, Baltimore, $32,500; Neafie & Levy, Philadelphia, $32,900; P. Dougherty & Co., Baltimore, three tugs, $31,000, $33,000, $35,000, according to size. Booth & Co. and P. Dougherty & Co. offer to furnish their tugs for the League Island yard at the same figures. All these bids are for tugs already built. For Washington Navy Yard the following bids were received, the tugs to be constructed under plans furnished by the Department: The Hohenstein Mfg. Company, Newark, N. J., $34,000; the Atlantic Works, East Boston, $32,978. For League Island tug, furnished—Neafie & Levy, Philadelphia, $32,490. To be constructed —Neafie & Levy, $32,490; Hohenstein Mfg. Company, Newark, N. J., $34,000. No bids were received for the tug for the Mare Island yard.

From investigations at Detroit respecting the use of Canadian cars, it does not appear that there is any material abuse of the privileges of the transit trade. Canadian cars are unquestionably used by American railroads in their local traffic, but not for any other reason or to any greater extent than American cars belonging to other roads. So long as the Canadian roads have enough American cars to balance their own rolling-stock detained in the United States they make no objection, but when railroad traffic gets brisk and the balance turns against them they call in their own cars as fast as they can get track or possession of them.

Emigration from Spain to South America is exciting alarm in the mother country, which seeks to repress the movement by legislation designed to lessen the causes of discontent. So long as the Spanish West Indies were the destination of the emigrants they were still under Spanish control and contributed to the wealth of the nation; but once landed in the fields they are now making for, they are to all intents and purposes lost to Spain. One proposal is to authorize the sale of State lands at a low price, and another to levy a heavy tax upon uncultivated lands and compel proprietors to give employment to agricultural laborers.

At a meeting of the Relief Commission at Johnstown, on July 31, a statement of moneys in the hands of Governor Beaver was rendered, showing that he had received a total of $2,394,414.46, and that of this $840,396.60 had been paid out, leaving in his hands $1,554,017.86. Of this $211,216.04 had been appropriated or would be used in payment of contracts or bills already incurred, leaving a net balance in the hands of the Governor in cash to-day of $1,342,801.82. To this fund there will be added $130,000 now in the hands of the Pittsburgh committee and $130,000 from the Philadelphia committee, making $1,602,801.82 available now. There is also said to be $150,000 in the hands of the Boston committee, as Governor Beaver said he had never received anything from there.

It is announced that a syndicate, headed by Heman Clark, is going to build a 50-mile railroad into the heart of the Lehigh Valley coal district and that Coxe Brothers & Co. have agreed to furnish a tonnage of 500,000 tons a year to it.

An important chapter in the annals of South Dakota was added the 4th inst., when the Sioux chiefs ceded to the United States Government 11,000,000 acres, or one-half of their reservation, in consideration of $14,000,000 received from the commissioners appointed by Congress. The soil is declared to be for the most part a rich, dark drift of alluvial loam, the very kind that delights the eye of the intelligent agriculturist.

Hardware.

The volume of business is moderate and prices substantially unchanged. Notwithstanding the firmness in the iron market, manufacturers are adhering to their former quotations, and in most lines are willing to accept orders for future delivery at present prices. In some lines they are offering slight concessions.

Cut Nails.

The local Nail market continues in about the same condition as reported for the past three or four weeks. The demand is fair, stocks are light and base sizes are still quite scarce, with most dealers asking 10 cents to 15 cents advance on them above current prices. The Western Nail manufacturers continue to sell to Eastern buyers at low prices for specifications averaging a certain sum above the base, and this is reflected daily in the increasing demand on local dealers for standard sizes. It remains to be seen how long this curious condition of affairs will continue. If all the local dealers unite in insisting upon an advanced price for large Nails this tendency of the trade will speedily be corrected. The present price is $1.90 for usual lots, but concessions are being made to a slight extent for favorable specifications. The maintenance of prices in this market seems to depend to quite a considerable extent on the success which the Western Nail men will meet with in establishing their contemplated scheme for controlling the output of their factories and the price of their product.

Miscellaneous Prices.

The prices of Sandpaper continue low and have recently settled somewhat. There is some irregularity in the quotations of the different manufacturers and a considerable margin between the prices of goods of recognized position and those of less favorably known manufacturers. The competition between the different makers is animated. Retailers will do well to see that their Paper is full count.

Sisal and Manila Rope have further declined and the market is regarded as not yet settled. Under these circumstances it is probably wise for dealers to refrain from placing orders for more than their immediate wants.

Bright Wire Goods continue unchanged and firm, the arrangement for the control of the prices of the goods working satisfactorily. Large stocks are, however, held by some of the leading jobbers, who are selling the goods below present quotations.

There are indications of some irregularity in Tackle Blocks and there is not entire uniformity as to the prices at which they are sold.

The Tack market is without change and manufacturers are not showing much disposition to make concessions beyond their established prices, which are as low as the cost of the goods will justify, leaving but a narrow margin of profit. The more conservative makers of standard goods are not far apart as to prices and are refusing orders which are offered them at lower figures. One unsatisfactory feature of the market is that goods are put up in so many irregular and undefined weights that purchasers have to be on their guard, or they will be induced to purchase short-weight and short-count goods under the inducement of low quotations, which are not, in matter of fact, as advantageous as those given by leading makers of standard goods.

Items.

The Spiral Weld Tube Company, East Orange, N. J., and 5 and 7 Beekman street, New York, issue a circular announcing Steel-Armored Acid-Conduits. These Conduits are intended for such iron-destroying fluids as acid, mine waters, sulphuric acid from digesters, brine, &c., and are manufactured under the patents of J. C. Bayles, the president of the company. They are described as consisting of a light and strong steel pipe built up of sections of such shape as to give the maximum strength and stiffness, and provided with a lining of rolled chemical lead so held in position between the external projecting flanges that it cannot collapse or become displaced. The combination of lead and steel thus secured is referred to as meeting all the requirements of service in the conveyance of fluids which do not attack lead, but which need to be handled under pressure which lead pipe will not carry.

Full particulars of Haydock & Bissell's auction sale 13th, 14th, 15th and 16th insts., at 12 Murray street and 15 Park Place, New York, are given in the announcement on page 51. This is an important sale and deserving the attention of buyers, embracing as it does Stamped Tin-Ware, House-Furnishing Goods, an important assignment of Cutlery and some lots of General Hardware. The Cutlery includes both Table and Pocket and many miscellaneous goods, which are offered in large quantities direct from manufacturers and importers.

Clauss Shear Company, Fremont, Ohio, issue a neat catalogue showing the different patterns of their Shears and Scissors, with list prices and a statement of the special natures of the different goods. In their introductory address to the trade they call attention to the extent of their factory and the advantages they possess from the use of natural gas.

George Brown, importer and dealer in Hardware and Cutlery, Guns, Ammunition, Sporting Goods, &c., 236, 238 and 240 Gay street, Knoxville, Tenn., is issuing a new illustrated catalogue devoted especially to Arms, Sporting Goods, Fishing Tackle, &c., to the display of which 26 large pages are devoted. Attention is also called to his stock of Hardware, Cutlery, Sash, Doors, Blinds, Paints, Oils, Glass, Brushes and Builders' Supplies, Machinery, Agricultural Implements, Wagons, Buggies, &c., which are not described in the catalogue.

Paine, Diehl & Co., Philadelphia, Pa., issue a budget of miscellaneous printed matter calling attention to their various manufactures, in which the Keystone Beater is given a prominent place. Testimonials, circulars for general distribution, &c., are also printed.

The circular issued by Chas. E. Felton, assignee of the Western Arms and Cartridge Company, 47 and 49 State street, Chicago, Ill., states that a stock of goods valued at $86,000 is offered at prices which deserve attention. The goods are described as all new and consisting of every article known to the trade in the line of Sportsmen's Supplies. An important line of Arms is specially referred to and attention called to others. A large quantity of Loaded Paper Shells, Cane Poles, Fishing Tackle, Bicycles, &c., is also referred to.

A. M. Patch, Clarksville, Tenn., issues a pamphlet describing his patent Corn-Sheller and Separator. This article is fastened to a box by clamps or bolts and is referred to as shelling all sizes of corn easily and rapidly.

Erie Specialty Mfg. Company, Erie, Pa., in their announcement on page 51 call attention to their facilities for manufacturing small iron specialties for outside parties. This is a line of work which they can conveniently do in connection with their regular manufactures. They also call attention, it will be observed, to their Cork-Pullers, Corkscrews, Lemon-Squeezers, Ice-Shaves, &c.

The De La Vergne Refrigerating Machine Company announce that hereafter they will occupy their new offices and factory buildings, foot of East 138th street (Port Morris), New York.

New Haven Staple Works, New Haven, Conn., advise us that they have a larger trade thus far this year than in several years previous, and refer also to the fact that the quality of the stock in their goods has not been changed in 18 years, though selling prices have shrunk 60 per cent.

Pope Mfg. Company, Boston, Mass., have issued an attractive colored lithograph of artistic design suitable to display, announcing the hours of closing on Saturdays, and also on other days. By an arrangement of numbers furnished any desired hour may be designated. The illustrations on the poster call attention to the World Type-Writer.

Markley, Alling & Co., Chicago, Ill., issue under date August 1 a price-current of 32 pages, which is devoted to Metals, Axes, Scoops, Saws, Hay-Knives, Huskers, Meat-Cutters, Butchers' Tools, Registers, Stove-Pipe Elbows, Sleigh-Bells, Skates and other seasonable goods.

Cordley & Hayes, 173 and 175 Duane street, New York, are calling the attention of the trade to their line of Dish-Pans as the latest in the way of Indurated-Fiber Ware that they have to offer. They are described as not suitable to use on a stove or over a fire, but as withstanding the action of the hottest water, and the point is made that the material being non-conducting, water will keep hotter in these pans than in metallic ones and that the pan itself will not be hot to the hands, no matter how hot the water is. They are having a good demand for these goods, although they have but recently been put on the market. Their new catalogue, issued under date July 1, is now out. Cordley & Hayes also issue a variety of small dodgers for mailing purposes, calling attention to special lines of their goods, which are furnished to their trade whenever desired.

J. Mory & Son, dealers in Hardware, Glass, Paints, &c., Reading, Pa., have sold their business, with building, to Winters & Moyer, who are referred to as enterprising young men, who will carry it on at the old stand. J. Mory & Son have bought T. Miller's store in Pottstown, Pa., to which place the junior member will remove this week for the purpose of engaging extensively in the Queensware business.

W. G. Avery, president of the W. G. Avery Mfg. Company, Cleveland, Ohio, has just been granted a Canadian patent on his Detachable Belt-Fastener. It is intended to put the goods on the Canadian market at once.

At the invitation of the New York Hardware Board of Trade, as represented by John C. Cook, president, Edward H. Cole, secretary and James H. Goldey, treasurer, a meeting was held yesterday at their rooms to select a representative of the Hardware trade and the various allied interests for suggestion to the Mayor as a suitable person to serve on the Committee of One Hundred to organize and arrange for the International Exhibition in this city in 1892. There was a good representation of Hardware men and those in related lines, and the meeting united in suggesting for membership on the committee Mr. John H. Graham, of John H. Graham & Co. It was also resolved that the chairman and secretary of the meeting should have the power to appoint a com-

mittee of one to represent each of the various Hardware interests, including Builders' Hardware, Cutlery, Brass Goods, Stoves, Machinery, &c., if considered necessary, to assist Mr. Graham in his work. The designation of Mr. Graham to represent them meets with the cordial approbation of the Hardware trade. He is wide-awake and very energetic, and will no doubt make himself felt in the committee's work.

A. J. Jordan, St. Louis, Mo., manufacturer of fine Cutlery, will remove about August 15 from his present quarters to 417 North Broadway. This building contains five stories and a basement, and is built L-shape, running through to St. Charles street, giving nearly a full acre of floor space. The location is one of the choicest in the city. The St. Charles street entrance will be utilized for shipping purposes for the wholesale department. No expense will be spared in fitting up the show-rooms, which will be done under the personal supervision of Mr. A. J. Jordan. The removal is necessitated by the increased demand for the AA, A1 and Old Faithful brands, requiring a larger building to properly handle the increased trade. We are advised that with the new plant the firm will be able to about double their present capacity and will be in position to fill all orders promptly. A comparatively new department with this house is the manufacture of fine Cases for Cutlery, Ladies' and Men's Traveling Companions and Ladies' Work-Boxes. This branch of the business was started about a year ago and has proved highly satisfactory, and they are now booking orders for holiday goods and say their line of imported and domestic Cases will be as full and complete as it is possible to produce.

Victor Born and Julius Born have bought the Hardware business heretofore carried on by Rudolph Born, at 97 and 99 West Randolph street, Chicago, and will continue the same under the firm name of Victor Born & Bro. All debts of Rudolph Born will be paid by the new firm, and all outstanding accounts due Rudolph Born are to be paid to Victor Born & Bro.

Freight Classification.

A good deal of complaint is made by Hardware manufacturers in regard to the inequity and inconvenience in many respects of the different freight classifications of Hardware. Objection is made to the classification on many leading goods as being too high, putting the manufacturers at a disadvantage and making them pay an undue proportion on the value of the goods for their transportation. It is also pointed out, and with much force, that while Hardware without exception has very materially declined in price there has not been for many years any important change in the classification with a view to meeting the interests of the manufacturers and the trade, the result being that Hardware, as a whole, pays for its transportation a much larger percentage of its value than it did 15 or 20 years ago. There are also many details in the classification with regard to the designation or shipping of goods which are found to be very annoying and the cause of considerable embarrassment to shippers. The whole matter has come into increased prominence since the Interstate Commerce act went into operation and manufacturers in many lines are disposed to be restive under the disadvantages suffered. The establishment of factories in the West from which nearly all kinds of goods are turned out gives increased importance to the whole subject, as manufacturers in the East thus find increased difficulty in placing their goods in Western markets. As indicating the way in which the question is regarded by representative Eastern manufacturers we give below exeracts from letters referring to the matter. It is thus alluded to by prominent manufacturers of Cast-Iron Shelf Hardware and other goods, principally heavy, and commanding a moderate price in proportion to their weight:

This freight classification is a matter of serious consideration for the Eastern manufacturers of Hardware, and unless there is a radical change in the same we shall be unable to ship any of our cheap goods West. At the present time only about 10 per cent. of our goods going West have a lower classification than second class, when at least 50 per cent. of same should go through as fourth class.

It would seem that the manufacturers of Files have good reason for dissatisfaction with existing classifications. The goods evidently are entitled to a low rate of freight, as maintained in the following letter from one of the largest File-manufacturing concerns in the country:

We have all along felt that Files have not been fairly treated in any of the classifications. They are put up in boxes, generally 150 pounds in weight and measuring less than a cubic foot. They are safe goods to transport, compact and thus easy to handle, and constitute a kind of freight that ought to be transported as fourth class. If the objection to putting them in a lower class arises from their supposed value, it might be a good plan for the classification committee of the railroads to consult some of the purchasing agents and learn how cheap they are. We are heartily in favor of any movement that will give us a lower classification, for we think the goods are entitled to it, and when kept in too high a class they only serve to increase the temptation to dishonesty in shipping and consequent evasions of the laws.

The same position is taken by another leading house, who refer to the matter as follows:

These goods are very compact, occupy very little room, indeed, as compared with their weight, are securely packed in wooden cases weighing, when filled, from 100 to 200 pounds each, making them quite easily handled and altogether as desirable freight for transportation as can be had of such goods. There is no reason in the world why they should not be put in fourth class, although third class would be a substantial gain to us, there being about 20 per cent. difference between the different classifications. As it is now, however, our goods are made to pay the same freight rate as a shipment containing Pocket Cutlery, fine shelf goods and the like, which would be of from three to five times as much value as the same shipment of Files. In this there is manifestly neither justice nor reason, and it would seem that the matter need only be brought to the attention in some appropriate manner of those having charge of freight tariffs or classification to have the basis changed and Files put where they rightly belong and an unequal discrimination against File manufacturers working them palpable injustice removed.

Manufacturers of Cutlery and also miscellaneous Hardware specialties in the following communication make the point that freights are apparently based on what the goods will stand, without regard to the cost of handling and transportation, and call attention to the importance of a discussion of the subject with a view to correcting the evil:

We are interested in the proper adjustment of Hardware freight rates. It is very evident that freights are based on what it is thought the goods can stand, without regard to cost of handling and transportation. Articles of greater bulk and of such shape as to be very inconvenient to handle and also of much less weight than Hardware are frequently classed fifth and sixth. It does seem as though something was materially wrong in Hardware classification, and constant discussion and agitation of the matter will, we think, result in a change more in harmony with our interests.

A well-known house manufacturing Hardware specialties and other leading goods give an instance of annoyance to which they have been subjected in the classification of Garden Trowels:

We have within a few days, however, been put to considerable inconvenience by inspectors being placed at depots here and raising classification of such goods as cast Garden Trowels, sold for 4 cents per pound, shipped by us as iron castings and raised by inspectors to Iron Toys.

In the following letter from correspondents who manufacture a line of Bolts and other articles in Builders' Hardware, in which brass and bronze are to a considerable extent used, a suggestion is made in regard to a general principle of classification:

We think if all Hardware in value at 10 cents per pound and under could be classed as third-class freight it would be a fairer discrimination between all Iron Hardware and manufactured goods, a part of which is bronze or brass.

The difficulty of securing a modification of the present classification, which is acknowledged to be unreasonable and troublesome, is alluded to in the following letter from one of the most prominent manufacturers of Saws in the country:

At the time the new general trunk-line classification went into effect, a couple of years or so ago, it raised Saws boxed from fourth to second class goods, which we thought was unwarranted and have been trying ever since to have the old classification restored, but without success as yet. In view of our own experience and what we learn of others in the same line it appears to be almost a hopeless task to get the railroad officials who are responsible for the present classification to change their views in the least. Nevertheless we trust that the Hardware people will persevere and hope that they will be successful in their efforts to put Hardware under a more equitable classification than it is now subjected to.

The following communication, which comes from leading manufacturers of Tin-Ware, goes into the matter in some detail and shows convincingly the inequity of the present classification on both Stamped and Pieced Tin-ware. Special reference is made to the classification by the Trunk Line Association and also by the Southern Railroad and Steamship Association:

We have been claiming that Tin-Ware has not been on an equitable basis either as classified by the Trunk Line Association or by the Southern Railroad and Steamship Association. In the Trunk Line Association list you will find Tin-Ware is rated first class, Stamped Tin-ware, nested solid, fourth class, less than carload; and Tin-Ware and Stamped-Ware, or either of them, in carload lots, fourth class.

There are a number of articles similar in character to Tin goods that are very much more valuable and on which there are greater risks in transit and which do not weigh any more than Tin-Ware, nested, that are classified lower. For instance, Brass Vessels, which are almost as bulky as Tin-Ware, are in second class, and they amount in value from eight to ten times greater than Tin-Ware. Canned fruit and vegetables are fourth and fifth class, the latter in carload lots; Glass Chimneys, second class; Crockery and Earthen-Ware, fourth and fifth class; Glass Oil-Cans, second and fourth class, the latter in carload lots; Copper and Brass Kettles, second or fifth class, all of which amount to considerably more in value and do not average greater in bulk than Tin-Ware. There is practically no risk in carrying Tin-Ware, as we cannot recall making any claims for damage in transit. We claim we are entitled to as

low classification as any of the foregoing, and that Tin-Ware should be second class when not nested, third class when nested, and that Stamped Tin-Ware nested solid should be fourth class, and where we can get carload weight of 20,000 to 24,000 pounds that nested Tin-Ware and Stamped-Ware nested should be in fifth class. The value of a carload of Pieced Tin-Ware when not nested amounts to from $800 to $1200, and it weighs from 16,000 to 20,000 pounds. It is easier to handle than a number of the articles named above, and as compared with commen Lamp Chimneys, which are much more liable to breakage, they average about $800 to the carload, and weigh from 15,000 to 16,000 pounds.

This same unjust comparison applies to the Southern R. R. and S. S. Association, only to a greater extent. Tin-Ware is there classified in first class, and when nested third class. No special rates are given for Stamped Tin-Ware nested solid, or in carload lots. Where, as on numerous other articles, principally as named above, but we repeat them—Canned Goods, fourth and fifth class; Copper and Brass Vessels. second class; Earthenware, fourth and fifth class; Glass Bottles and Tumblers and Chimneys, third and fifth class; also Fruit-Jars, but the latter when released; Hollow-Ware in carload lots, third and fifth class when released, when packed third and fourth class; Soda-Water retorts fourth class, all of which will amount to more in value than our line of goods and on which there is a greater risk in transit.

In our opinion there has not been on any other goods such an unjust discrimination as on Tin-Ware. We claim that a reasonable and equitable rating would be on the Southern lines, Tin-Ware third class, Tin-Ware nested or Stamped Tin-Ware nested solid fourth class, and if shipped carload lots fifth class. Even at this rate it will make the average cost of transportation to points in Carolina, Georgia and Alabama from 15 to 20 per cent. of the value of the goods, which is a burden that is hard to overcome. At present it averages from 20 to 35 per cent. on the value of the goods, and unless some relief is afforded to manufacturers a considerable loss of trade will be the result.

The above instances are given as illustrations of the dissatisfaction that exists on the part of Hardware shippers and the injustice of the existing freight rates. The matter is one of very considerable importance, and is deserving the best attention of all merchants and manufacturers. There are serious difficulties in the way of a modification of existing classifications, but there is little reason to doubt that if a concentrated effort were made and facts and figures adduced classification committees would give the matter their best attention, and a correction of many of the existing provisions which are most onerous and objectionable would be secured. It is well worth the while of those who find reason for dissatisfaction with existing classifications to move in the matter.

Plumbers' Material Protective Association.

We give below the constitution and by-laws of the Plumbers' Material Protective Association, an organization recently formed in this city by the manufacturers of and dealers in Plumbers' Materials for the purpose of lessening losses through bad debts. This organization was constituted by the leading houses in the trade, and much care was taken in the drafting of the by-laws by which it is governed. The matter thus presented will probably be suggestive to merchants and manufacturers in other lines, and may perhaps aid them in taking some concerted action for their protection against bad debts.

CONSTITUTION.

ARTICLE I.—NAME.

This association shall be called the Plumbers' Material Protective Association.

ARTICLE II.

The object of this association is to insure united action wherever the interest of its members is concerned for the purpose of their protection against the making of bad debts.

ARTICLE III.

The general office of this association shall be located in the City of New York.

ARTICLE IV.

The officers of this association shall consist of a president, vice-president, treasurer and secretary and an executive committee consisting of four members and the president, who shall be the chairman thereof. All officers shall be appointed or elected as may be provided by the by-laws.

BY-LAWS.

ARTICLE I.—MEMBERSHIP.

Any manufacturer or dealer in plumbers' supplies in good standing may become a member of this association in conformity with the by-laws as hereinafter provided.

All applications for membership must be made to the secretary in writing, who shall place same before the Executive Committee for their acceptance or rejection.

ARTICLE II.—DUES AND PENALTIES.

The initiation fee shall be $25. Annual dues shall be $50, payable quarterly in advance.

Any member neglecting to pay the prescribed dues within 60 days after having been notified so to do may be suspended from all privileges of membership, subject to the action of the Executive Committee.

By a majority vote of the Executive Committee at any regular meeting any member may be expelled for cause, provided such member has had an opportunity to be heard before said committee.

Members of the association shall be required to furnish information when called upon by its officers or duly authorized employees, and are also expected, whether called upon or not, to voluntarily send information to the secretary whenever any delinquency or act takes place which jeopardizes the credit of any party in the trade, to the end that the officers may be early apprized of the facts and measures taken at once to save the members of the association from further loss. And any member making a false report, with malicious intent, for the purpose of injuring any firm or deceiving members of the association shall, on a hearing before the Executive Committee, be subject to a penalty of $25, and shall be suspended from membership until said penalty shall have been paid to the treasurer of the association; and on a repetition of the offense shall be liable to expulsion from the association. Any member persistently violating the by-laws and regulations from time to time established by the association may be expelled by a majority vote of the Executive Committee.

The secretary and his assistants shall be required under oath not to divulge any information they may receive concerning the standing, financially or morally, of any dealer to any person or persons not members of this association.

ARTICLE III.—DISPUTES WITH DEBTORS.

In cases where correctness of accounts is disputed and a settlement refused in consequence the matter may be referred by the creditor member to the Executive Committee, who shall hear the evidence and decide the case on its merits, and their decision as to the justice or otherwise of the claim as far as it may apply to the complaining member shall be final. Their decision shall not be construed as interfering with the right of the member to sue the disputant should he so desire.

ARTICLE IV.—RIGHTS AND PRIVILEGES.

Every member is eligible to any of the offices of the association and is entitled to cast one vote at the annual election of the officers; provided, however, that no firm shall be entitled to more than one vote.

Every member is entitled to obtain from the secretary on application any information received concerning the standing and commercial credit of any person with whom such member has business relations, and also such general reports as may from time to time be received by the secretary, but such information must not be communicated to any person outside this organization.

ARTICLE V.—MANAGEMENT.

The management of this association is vested in an executive committee who shall be elected by ballot of the members of the association at their annual meeting.

The president, vice-president, and treasurer shall also be elected at the annual meeting. The secretary shall be appointed by the Executive Committee, who shall define his duties.

The term of office of all these officers shall be for one year. Vacancies in the Executive Committee or among the officers may be filled by the Executive Committee pending a general meeting.

The secretary and treasurer only shall receive compensation, and their salaries shall be fixed by the Executive Committee.

All disbursements shall be by draft drawn on the treasurer by the secretary and countersigned by the president or vice-president.

ARTICLE VI.—DUTIES OF OFFICERS.

It shall be the duty of the president to preside at the meetings of the association and Executive Committee and to exercise a general supervision over the interests and welfare of the association. He may call special meetings in his discretion and shall call special meetings of the Executive Committee upon the written request of three members, and of the association on the written request of five members.

In the absence of the president the vice-president shall preside at all meetings and act in his place, with full power.

The treasurer shall be charged with the custody of the funds of the association and shall furnish such bonds as the Executive Committee may require.

All his disbursements shall be as hereinbefore provided. He shall sign all checks and keep a book or record of all receipts and disbursements, making a report of same to the association at the annual meeting, or oftener if required.

ARTICLE VII.

The annual meeting of the association shall be held in the City of New York, on the third Wednesday in July in each year. Other meetings shall be held at such time and place as may be designated by the Executive Committee.

ARTICLE VIII.—QUORUM.

Three members shall constitute a quorum of the Executive Committee, and 15 members a quorum of the association.

ARTICLE IX.—REVISION AND AMENDMENTS.

This constitution and these by-laws may be revised or amended at any regular meeting of the association, or at a special meeting called for that purpose, provided that notice of such revision or amendment has been sent to each member of the association at least ten days before said meeting, and that such revision or amendment be passed by a majority vote of the members present.

METHOD OF BUSINESS.

Whenever any member has an account on his books which he is unable to collect, he may send a letter to the debtor to the following effect (blanks for this purpose may be had on application to the secretary):

NEW YORK, June 20, 1889.

MR. JOHN DOE,
4250 Third avenue, City—

Dear Sir: Your account, amounting to $155, is now so long past due that we must insist upon a prompt settlement, and unless it is attended to within ten days from this date we shall feel justified in handing your name to the secretary of the Plumbers' Material Protective Association. We trust, however, that by a prompt remittance you will render this course unnecessary.

Respectfully yours,
JOHN SMITH & CO.

After time of grace has expired and the party is not heard from, or his explanations are unsatisfactory to his creditors, his name may be sent to the secretary of the association, who shall send him a letter as follows:

OFFICE OF PLUMBERS' MATERIAL PROTECTIVE ASSOCIATION,
June 20, 1889.

MR. JOHN DOE,
4250 Third avenue, City—

Dear Sir: You will please take notice that an account amounting to $155, due by you to Messrs. John Smith & Co., is now past due, and unless settled by you within ten days from this date you may be unable to purchase any goods from any member of said association, except for cash before delivery. I would strongly urge you to preserve your standing by immediately settling this claim.

Respectfully yours,
_____
Secretary.

At the expiration of the specified time Messrs. John Smith & Co. shall notify the secretary whether or not John Doe has satisfied their claim.

Upon receipt of notice from the secretary that John Doe has failed to settle his account with Messrs. John Smith & Co. it shall be the duty of all members to sell John Doe for cash, before delivery only, until he has paid Messrs. John Smith & Co.

The following is the form of agreement signed by the members. It gives, it will be observed, further points in regard to the organization:

We, the undersigned corporations, firms and individuals represented in the Plumbers' Material Protective Association, hereby agree to conform to the constitution and by-laws adopted by said association, as per copy hereto annexed; and we further agree to be governed by the method of business of said association respecting credits, and will not sell any goods on credit to any party whose name is given to

us by the association for the reason that the said party is indebted to any member for an account which is considered otherwise uncollectable until we are advised by the proper officers of the association that such account has been settled. We also agree to furnish the proper officer of the association with a list of accounts that we find are uncollectable, and we hereby subscribe the initiation fee of $25, and also $12.50, being the first quarter's dues in advance.

Trade Topics.

In connection with the question which has often been discussed in these columns by many of our correspondents as to the relative advantages of purchasing from manufacturers or jobbers, we would call the attention of the trade to the announcement of a well-known manufacturer to the following effect:

If you do not buy enough to pay for ordering from the factory, just figure up what the extra expense would be and see how surprised you are. It don't amount to anything. Why, you can save money. But our goods are held by the jobbing trade generally and you may ask them for them.

As bearing on the question of the class of trade that a manufacturer will seek and the advantages connected with the policy of selling only to jobbers, we note the following extract in the letter of a prominent manufacturer:

We walked into the trade of our former competitors and without any trouble booked orders from every jobber that I called on who handled goods in our line; and why? Because I positively declined to sell any retail house, no matter what their standing is and what kind of goods they handle. This none of our competitors can say, and they have let the cream go for the milk!

It should, however, be added that the policy pursued by these manufacturers was evidently not satisfactory in its results, as not long after the writing of the letter above they were compelled to discontinue business.

Referring to the condition of things in Chicago, especially with reference to the establishment in that city of agencies by Eastern manufacturers, whose goods are thus brought more directly into connection with the trade of that city and the important section of which it is the center, we have the following advices from a well-informed correspondent:

A large number of these agents and branch houses sell only to jobbers and the very large retailers, but the others sell to all who are able to give an order on anything approaching even a wholesale basis, and the tendency is evidently to accept orders of moderate size from any respectable retailer. This has created an antagonism against agents on the part of the local jobbers, who have withdrawn their patronage as far as possible from those who sell to the small trade. The jobbers have also in many instances put themselves on a par with the manufacturers' agents by handling one maker's goods exclusively and building up close relations with that concern, so that practically they are headquarters on his goods.

One of the most important departments in conducting business is that of collections, and in many otherwise well-managed stores this is neglected. The following remarks on the subject, coming from a practical Hardware man of some experience, are timely and will be of interest:

This season of the year is one in which there seems to be the smallest amount of trade and the largest number of bills to meet. The fact is prominent that something has to be done to raise some money for future needs, as cash receipts over the counter are hardly large enough to meet daily expenses, let alone putting anything away for future use. The building trade has not been so energetic as one would wish this season, so the usual receipts from this branch of the business, though not representing a large profit, are not forthcoming to fill a vacancy which is usually supplied from this direction Collecting is looked upon as something some people are born to, while others are totally unfitted for. No doubt some people have more of an aptitude for this disagreeable part of the business than others have. But it has got to be done, and you have got to do it. You have got to be convinced of your great need of the money before you can make others believe you need it. Those who don't pay promptly always take advantage of any uncertainty in the ring of your demands, and have plenty of excuses ready to put you off with. Very few but will begin to hustle if you can come out with a strong "I must have it." You may have asked them before, "wishing they would pay it," or, "when can you pay it," but when you get to a place where you know you must "root, hog, or die," then there is, if at any time at all, a desire to accommodate you. They "will borrow it for you," or hurry some one up "who owes them," or in some way get the money if you must have it, whereas before it wasn't possible to do anything for you to-day. Don't explain why you have to have the money. It has nothing to do with the case. The money is yours by right, by previous agreement, and it does not strengthen your case to explain what you want the money for. Make the demand in a straghtforward, pleasant way as if you expected to get it. Make your business known the first thing after passing the usual greetings. You make nothing by talking of other things first; it won't be as easy to get to the point as at first. Get a definite promise as to time and amount—if you can't get all—and then be sure to be promptly on hand at the time mentioned and demand the amount promised. This is a good time to push up the old delinquents who have had taxes or coal bill to pay when you have seen them upon this subject before. Be sure you have "got to have it."

Exports.

PER BARK ZEBINA GONDEY, JULY 3, 1889, FOR MELBOURNE, AUSTRALIA.

By R. W. Forbes & Son.—3 packages Stamped-Ware, 21 cases Hardware, 18 packages Stoves, 7 packages Scales, 11½ dozen Tools, 14 dozen Hatchets, 20¾ dozen Axes, 2¾ dozen Wringers, 1 case Lawn-Sprinklers, 1 case Plows, 1 case Fire-Arms, 7 cases Ammunition, 9 cases Tin-Ware, 1 case Hardware, 2 cases Hardware, 1 package Lawn-Sprinklers, 1 case Hardware, 7 cases Tin-Ware, 16 packages Toys, 4 packages Wire-ware, 6 cases Pencils, 5 gross Lemon-Squeezers, 1 case Toy Guns, 1 case Stencils, 1 case Tools, 10 boxes Household Utensils, 3 cases Toys, 3 cases Plated-Ware, 3 cases Sash-Cord, 10 packages Horse-Rakes, 3 sets Pulleys, 13 packages Hardware, 4 cases Hardware, 11 cases Carriage-Bolts, 1 case Brass Goods, 1 case Electric Goods, 60 dozen Axe-Handles, 8 cases Hardware, 17 gross Brushes, 4 dozen Velocipedes, 57 dozen Whips, 13,000 Carriage Bolts, 32 boxes Sewing-Machines.

By W. H. Crossman & Bro.—87,282 pieces Roofing Slate, 925,000 Percussion Caps, 400 pounds Oil-Stones, 10 dozen Hardware, 15 dozen Clocks, 2 dozen Axes, 7 dozen Saws, 12 dozen Shade-Rollers, 1 dozen Carpet-Sweepers, 13 packages Hardware, 18 dozen Hammers, 18 dozen Egg-Beaters, 7 dozen Whips, 6 dozen Twine-Boxes, 6 dozen Stencils, 3 gross Mouse Traps, 6 dozen Lawn-Sprinklers, 3 dozen Trowels, 14 dozen Cow-Bells, 10 gross Oil-Stone, 12 dozen Curry-Combs, 6 dozen Sifters, 2 Refrigerators, 1 case Hardware, 12 dozen Braces, 1 case Hardware, 12,722 pounds Barb-Wire, 2500 pounds Nails, 12 cases Hardware, 4 dozen Velocipedes, 23½ dozen Pulley-Blocks, 1 case Curry-Combs, 2250 pounds Fiber, 36 dozen Hardware, 50,000 Primers.

By Arnold, Cheney & Co.—2 cases Velocipedes, 4 cases Forks and Rakes, 36 cases Handles, 2 cases Iron Castings, 4 cases Axles, 1 case Velocipedes, 11 cases Harness, 2 packages Hardware, 3 cases Spokes, 4 cases Hubs, 34 bundles Carriage-Ware.

By Arkell & Douglas.—34 cases Handles, 3 cases Hardware, 2 cases Hardware, 45 cases Handles, 1 case Castings, 7 cases Handles, 2 crates Traps, 3 boxes Shade-Rollers, 1 case Axles, 2 cases Hardware, 7 cases Handles, 17 boxes Lawn-Mowers, 6 cases Sandpaper, 10 cases Bolts, 13 cases Handles, 26 packages Hardware, 3 cases Lawn-Mowers, 4 cases Blacking, 29 cases Handles, 19 crates Traps, 63 cases Axes, 129 packages Hardware.

By McLean Bros. & Rigg.—20,000 Belt Studs, 21 gross Fruit-Jars, 12 Stocks and Dies, 3000 Handles, 6 dozen Reflectors, 36 dozen Lamp-Burners, 18 pairs Snips, 18 Chucks, 3 dozen Hand-Drills, 1 case Hardware, 400 pounds Nails, 2½ dozen Augers, 12 Stocks and Dies, 2 Machinists' Dies, 18 dozen Grindstone Fixtures, 1 gross Potato-Parers, 1 dozen Braces, 4½ dozen Emery-Wheels, 30 dozen Drills, 6 dozen Bench-Screws, 180 Refrigerators, 4 boxes Plated-Ware.

By H. W. Peabody & Co.—2 cases Hardware, 5 cases Fire-Arms, 4480 pounds Axle-Grease, 20 cases Wringers, 56,011 pounds Barb-Wire, 2240 pounds Barb-Wire, 2 cases Crayons.

By Morris, Strouse & Co.—72 dozen Tools, 5 gross Toys, 2 gross Tools, 15 dozen Tools, 20 dozen Thermometers, 430 pounds Oil-Stone, 1 case Ice-Cream Freezers, 72 dozen Mouse-Traps, 58 cases Velocipedes, 36 dozen Wood Faucets, 24 dozen Fly-Traps, 6 gross Kitchen Tools, 9 pieces Lawn-Mowers, 4 dozen Tools, 18 dozen Hardware, 6 dozen Cork-Pullers, 12 dozen Razor-Strops, 2 1-6 dozen Toys, 24 dozen Fly-Traps.

By Strong & Trowbridge.—1 case Nails, 2 cases Pumps, 2 casks Pumps, 80,000 Primers, 3 cases Axes, 1 case Nails, 2 cases Carriage Castings, 2 cases Spokes, 1 case Bolts, 2 cases Hardware.

By Welsh & Lea.—2 cases Wringers, 1 case Saws, 1 bundle Hardware.

By Ansonia Clock Company.—26 boxes Clocks.

By Meriden Clock Company.—18 packages Plated-Ware, 13 boxes Plated-Ware.

By Herbst Bros.—5576 pounds Hardware.

By Russell & Erwin Mfg. Co.—28 cases Hardware.

By W. K. Freeman.—22 packages Hardware.

By Manhattan Brass Company.—18 packages Lamp-Ware.

By Sargent & Co.—2 cases Hardware.

By White Sewing Machine Company.—30 Sewing-Machines.

By Coombs, Crosby & Eddy.—50 dozen Edge Tools, 45 dozen Wrenches, 32 dozen Thermometers.

By Hammacher & Delius.—8 Stoves, 22 packages Hardware, 1100 Nails, 4 cases Hardware.

By Healy & Earl.—9 boxes Wood-Working Machinery, 7 cases Stoves.

By Singer Mfg. Company.—1176 Sewing-Machines, 125 gallons Sewing-Machine Oil.

By S. Guilderman & Co.—6 cases Castings.

By F. B. Wheeler & Co.—2 cases Hardware, 5300 Carriage Bolts, 20 dozen Axes, 1 case Horse-Collars.

By A. Field & Co.—8000 Spokes, 160 doz n Handles, 4 dozen Tools, 24 dozen Grease, 94 dozen Harness-Ware, 33 dozen Whips, 30 dozen Whips, 24 dozen Rollers, 6 dozen Axes, 15 dozen Whips, 2 dozen Wringers, 8 dozen Tools.

By A. S. Lascelles & Co.—3 gross Whips, 60 cases Glass Jars, 36 cases Slates, 20 dozen Axes, 13 cases Handles, 50 boxes Clothes-Pins, 20 dozen Hatchets, 51 gross Hammers.

By R. W. Cameron & Co.—8 cases Machinery, 9 cases Velocipedes, 1 case Brushes, 1 case Hardware, 300 Car-Wheels, 4 cases Whip-Handles, 1 Carriage.

PER BARK EDITH SHERATON, JULY 5, 1889, FOR PORT NATAL, SOUTH AFRICA.

By Arkell & Douglas.—5 cases Carriage-Ware, 2 dozen Picks, 2 dozen Picks, 18 dozen Tools, 12 Carriages, 1 box Shade-Rollers, 10 dozen Picks, 3 dozen Axes, 118 dozen Handles, 12 dozen Handles, 1 case Hardware, 4 dozen Axes, 1 case Handles, 1 case Rakes, 3 cases Varnishes, 2 cases Hardware, 12 crates Rat-Traps, 1 case Bench-Screws, 2 dozen Axes, 1 case Saws, 1 case Clocks, 1 case Hatchets, 5 packages Carriage-Ware, 3 cases Brooms, 1 bale Sash-Cord, 2 boxes Sash-Weights, 3 boxes Shade-Rollers, 200 kegs Nails, 1 bundle Sash-Cord, 20 Carriages, 5 boxes Shade-Rollers, 1 case Axes, 8 cases Varnishes, 1 case Saws, 7 cases Hardware, 1 Carriage, 1 case Wire, 1 case Sash-Weights, 3 Carriages, 4 Wagons, 1 case Hardware, 1 case Hardware, 1 case Castings, 2 packages Hardware, 34 bundles Rims, 1 package Name-Plates, 8 boxes Sash-Weights, 45 boxes Sash-Weights, 2 cases Saws, 15 dozen Picks, 10 dozen Axes, 15 cases Axes, 7 packages Horse Nails, 7 cases Hammers, 92 cases Handles.

PER BARK I. W. PARKER, JULY 16, 1889, FOR PORT ELIZABETH, SOUTH AFRICA.

By R. W. Forbes & Son.—6 dozen Axes, 500 Handles.

By Goulds Mfg. Company.—7 Hand-Pumps.

By R. W. Forbes & Son.—4 packages Carriages, 1 case Batteries, 7500 feet Fuze, 40 dozen Axe-Handles.

By Arkell & Douglas.—6 dozen Spades, 14½ dozen Saws, 1 Road Cart and Shafts.

By W. H. Crossman & Bro.—86 dozen Hardware, 120 dozen Handles, 6 dozen Hardware, 8 dozen Clocks, 8 Road-Scrapers, 20 Trucks.
By Coombs, Crosby & Eddy.—93 dozen Brooms, 10 dozen Axes, 8 dozen Sash-Fasteners, 14,100 pounds Sash-Weights, 48 Plows, 8 Shellers, 12 Churns, 1 dozen Saws, 3000 pounds Nails, 12 Plows, 24 Tools, 9 Pumps, 5 Scales, 150 pounds Agricultural Wrenches, 7 Trucks, 6 Meat-Cutters, 6 dozen Washers, 1 dozen Rat-Traps.

REVIEW OF THE WHOLESALE MARKET IN PAINTS AND OILS.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

Animal and Vegetable Oils.

There have been no distinctively new features in this branch of trade the past week. The near approach of the new crop season naturally develops increasing interest in the outcome of the probable sharp competition between "trust" and "anti-trust" producers, but as yet no movements have been made that would afford any idea as to how prices will start. Unfavorable weather has reduced the catch of Menhaden, and consequently the production of crude Menhaden-Oil, which fact has operated to harden values somewhat. In other lines the conditions have been practically the same as during the preceding week and the changes in prices unimportant.

Linseed-Oil.—Prices for city-make Oil are held firmly at 60¢ for raw and 63¢ for boiled. There is a good steady demand that takes up nearly the entire output. The receipts from out of town are light and current prices are below what foreign Oil can be imported at. The meager information as to the new crop of seed affords no encouragement for anticipating lower prices right away.

Lard-Oil.—The movement has been comparatively light and prices are rather weak, without, however, any business in present make prime at less than 52¢ @ 53¢. Large home-trade buyers and exporters purchase very sparingly, owing to the fact that Oil at present prices is relatively a great deal higher than crude materials.

Cotton-Seed-Oil.—Since the fairly liberal transactions referred to last week there has been no important movement of either crude or refined Oils and the position of the market is unchanged. Choice qualities are firmly held, but others are irregular and weak. The exports from the United States during June were 453,000 gallons, and for the fiscal year 1889 about 2,700,000 gallons, against 4,450,000 gallons the preceding year. A company has been chartered, with $300,000 capital, to build and operate a refinery at Charleston, S. C. It is to be an "anti-trust" establishment and is said to have substantial backing.

Menhaden-Oil.—Crude Oil is a shade firmer, with 22¢ the inside price for good merchantable qualities and 23¢ @ 24¢ named for the better grades. The demand is running fairly, particularly on export account, and the catch of fish latterly has been light. There has been no change on the Pressed or Bleached Oils.

Sperm and Whale Oils.—The balance of the cargo of the ship Milton, making 1550 barrels crude Sperm and 800 barrels crude Whale all told, has been received here and mostly all sold. Otherwise there has been no new feature, the movement of the manufactured Oils being fair and at steady prices.

Cocoanut-Oil.—Ceylon has been selling at 5⅝¢ from store and 5½ ex-ship, which is a further decline. The demand for Cochin and for Cuban product has run light.

Paints and Colors.

The condition of the market for all goods in this line is nearly the same at the present time as it was a week ago. Nothing has been done by the Lead Trust beyond making uniform rebates where some slight difference previously existed. The color associations have made no alterations of any kind and commodities that are not under the control of combinations fairly hold their own. Business in all departments has been on a rather small scale, but, as a whole, orders have made a better showing numerically this week than last.

White Lead.—There have been rumors of an advance in prices by the trust, but they were without foundation. The only change made was a modification of the Atlantic company's old prices and rebates to conform with those that have ruled elsewhere. The difference was merely in form, however, the Atlantic's old net prices having been the same as those of the other concerns. Business in the pigment is merely of fair volume, but has been better than during the preceding week and up to the average volume for the season.

Red Lead, &c.—Former prices prevail for domestic Red Lead, Litharge and Orange Mineral, and the demand runs fairly. Foreign Orange Mineral is meeting with quite good sale, but the outlet for foreign Leads and Litharge is very narrow.

Zincs.—American are selling in moderate quantities only at 4¼¢ @ 4½¢ and 4¾¢ for the different grades. Supplies are in good position, and those figures would be shaded very little, if at all, to buyers of large lots. Foreign Zincs are firmly held, but rather dull.

Colors.—Sales of Quicksilver Vermilion have been somewhat freer and the market is showing more pronounced strength, owing to the further rise in the cost of Quicksilver. Other Reds, Greens, &c., have undergone no change in price, but some of the more staple articles have had rather better sale. Rochelle and French Washed Ocher have been taken for future delivery in fairly liberal quantities, but there is merely the ordinary movement of Sienna and Umber.

Miscellaneous.—With the price of Chalk low and the demand for their goods moderate, manufacturers of Whiting still make low prices to large buyers, but it does not transpire that less than 40¢ for Common or 50¢ for Gilders' has been accepted. Paris White is moving fairly, but at rather low and irregular prices.

Wholesale Prices.

NEW YORK, August 7, 1889.

Animal and Vegetable Oils.

Linseed, City, raw	per gal	60 @	..
" " boiled		63 @	..
" Western, raw		58 @	59
Lard, City, Extra Winter		55 @	56
" " Prime, present make		.. @	53
" " Extra No. 1		47 @	49
" " No. 1		42 @	44
" Western, prime		52 @	53
Cotton-seed, Crude, prime		36 @	37
" " off grades		30 @	35
" Summer Yellow, prime		46 @	48
" " " off grades		40 @	45
Sperm, Crude		65 @	..
" Natural Spring		68 @	..
" Bleached Spring		73 @	..
" Natural Winter		75 @	..
" Bleached Winter		80 @	..
Whale, Crude		38 @	..
" Natural Winter		45 @	46
" Bleached Winter		47 @	48
" Extra Bleached		49 @	50
Sea Elephant, Bleached Winter		54 @	55
Menhaden, Crude, Sound		22 @	24
" Crude, Southern		21 @	23
" Light Pressed		27 @	29
" Bleached Winter		34 @	..
" Extra Bleached		38 @	39
Tallow, City, prime		.. @	50
" Western, prime		.. @	49
Cocoanut, Ceylon		5½ @	5⅝
" Cochin		6⅛ @	6⅜
Cod, Domestic		31 @	32
" Foreign		34 @	35
Red Elaine		36 @	38
Red Saponified	℔	4¾ @	5¼
Bank	per gal	25 @	26
Straits		26 @	27
Olive, Italian, bbls		68 @	—
Neatsfoot, prime		62½ @	75
Palm, prime, Lagos	℔	5⅛ @	5¼

Mineral Oils.

Black, 29 gravity, 25 @ 30 cold test, per gal		8 @	9
" " 15 " "		8½ @	9½
" " summer	"	6 @	7
Cylinder, light, filtered	"	15 @	20
" dark, "	"	14 @	20
" " steam refined	"	10 @	18
Paraffine, 23½ @ 24 gravity	"	11 @	12
" 25 "	"	10 @	11
" 28 "	"	8½ @	9
" red, 21 @ 22 gravity	"	14 @	14½
" " 22½ @ 23 "	"	12 @	13

Paints and Colors.

Barytes, Prime White	ton.	$21.00 @	21.50
" American Refined		18.00 @	20.00
" " No. 1		16.00 @	17.00
" " No. 2		14.00 @	15.00
" " off-color		12.00 @	.....
Blue, Celestial	℔	5½ @	7½
" Chinese		45 @	50
" Prussian		20 @	35
" Ultramarine		7 @	25
Brown, Spanish		½ @	1
" Vandyke, American		3 @	3½
" " English		6 @	8
Black, American Drop		8 @	10
" English "		12 @	14
" Frankfort "		5 @	18
Black, Lamp, common		12 @	18
" " medium		19 @	25
" " prime		27 @	33
Carmine, No. 40, in bulk		3.10 @	..
" " in boxes or barrels		3.20 @	..
" " in ounce bottles		4.20 @	..
Chalk, in bulk	ton.	2.00 @	2.50
" in bbls	℔ 100 ℔	25 @	35
China Clay, English	℔ ton.	13.50 @	18
" " Southern		10.00 @	11.50
Cobalt Oxide, prep'd		2.90 @	..
" " black	lots 100 ℔	2.60 @	..
" " "	less "	2.65 @	..
Crocus Martus, English	℔ ℔.	1½ @	2½
" American		1½ @	2½
Green, Paris, in bulk		20 @	..
" " 170 @ 175 ℔ kegs		20½ @	..
" " small packages		22 @	26½
" Chrome, ordinary		8 @	11
" " extra		12 @	13
" " pure		22 @	25

REBATES, &c.—Paris Green.—Rebates to buyers of 500 to 1000 ℔ during season, ½¢ ℔ ℔; to buyers of 1000 to 2000 ℔, 1¢; to buyers of 2000 to 4000 ℔, 1½¢; to buyers of 4000 to 10,000 ℔, 2¢, to buyers of 10,000 ℔ and over 2½¢. Buyers of 5 tons or over at one time receive an additional ¼¢ ℔ ℔.

Lead, American White, dry		6¾ @	7
" " in oil		7 @	7¼
" " Red		6¾ @	7
Litharge, in barrels		6¼ @	..
" " 500-℔ lots		7 @	..
" " smaller "		7¼ @	..

REBATES, &c.—White Lead. ½¢ ℔ ℔ rebate on purchases of 500 ℔ and over, if paid for within 60 days of date of invoice; terms, 60 days or a discount of 2½ % if payment within 15 days from date of invoice. Extra rebate of ½¢ ℔ ℔, payable July 1 and December 31 to buyers of a total of 10 tons pure Lead during the year.

Litharge.—Rebate of ½¢ ℔ ℔ for cash in 60 days and 2½ % additional for cash in 15 days.

Ocher, Rochelle		1.35 @	1½
" French Washed		1½ @	2½
" German Washed		1½ @	3
" American		⅞ @	1¼
Orange Mineral, English		8½ @	9½
" French		9 @	9¾
" German		8½ @	9½
" American		8 @	8½
Paris White, English Cliffstone		90 @	1.10
" American		70 @	80
Red, Indian, English		5½ @	7
" " American		2 @	6
" Turkey		9 @	14
" Tuscan		9 @	11
" Venetian, American	℔ 100 ℔.	90 @	1.25
" " English		1.00 @	1.45
Sienna, Italian, Burnt and Powd.	℔ ℔	5 @	6½
" " " burnt Lumps		1½ @	3½
" " " Raw, Powdered		5 @	6½
" " " Lumps		2 @	3½
" American, Raw		1½ @	1¾
" " Burnt and Powdered		1½ @	1¾
Talc, French		1¼ @	1½
" American		1 @	1¼
Terra Alba, French	per 100 lb	72½ @	80
" English		80 @	85
" American No. 1		70 @	75
" American No. 2		38 @	40
Umber, Turkey, Bnt. and Powd.	℔ ℔	3½ @	4
" Burnt, Lumps		2¾ @	3
" Raw and Powdered		3½ @	4
" Raw, Lumps		2¾ @	2¾
" Burnt, American		1¼ @	1½
" Raw, "		1¼ @	1½
Yellow, Chrome		10 @	25
Vermilion, American, Lead		11½ @	13
" Quicksilver		65 @	70
" English Imported		82 @	85
" Imitation English		8 @	25
" Trieste		75 @	77
" Chinese		88 @	90
Whiting, Common	℔ 100 ℔	40 @	45
" Gilders'		55 @	65
Zinc, American, dry	℔ ℔	4¼ @	4¾
" French, Red Seal		6⅞ @	....
" " Green Seal		7½ @	....
" " V. M. X.		6 @	....
" Antwerp, Red Seal		6½ @	....
" " Green Seal		7 @	....
" German, L. Z. O.		5¾ @	....
" V M. in Poppy Oil, G. Seal, lots of 1 ton and over		9⅝ @	10⅛
lots less than 1 ton		9⅞ @	10⅜
Zinc, V. M. in Poppy Oil, Red Seal, lots of 1 ton and over		.. @	..
		8½ @	9
Lots of less than 1 ton		8¾ @	9¼

DISCOUNTS.—French Zinc.—Discounts to buyers of 10-bbl. lots of one or assorted grades, 1 %; 25 bbls, 2 %, 50 bbls, 4 %. No discount allowed on less than bbl. lots.

Colors in Oil.

Blue, Chinese	℔ ℔	35 @	40
" Prussian		20 @	45
" Ultramarine		12 @	18
Brown, Vandyke		7 @	12
Green, Chrome		8 @	13
" Paris		16 @	18½
Sienna, Raw		7 @	13
" Burnt		7 @	13
Umber, Raw		7 @	10
" Burnt		7 @	10

Glue.

Low Grade	℔ ℔	8 @	10
Cabinet		12 @	14
Medium White		13 @	15
Extra "		17 @	20
French		9 @	20
English		10 @	15
Irish		12 @	15

The Goodridge Self-Heating and Folding Bath-Tubs.

The Michigan Bath-Tub Company, Homer, Mich., are putting on the market the Goodridge Self-Heating and Folding Bath-Tubs, illustrations of which are shown in the accompanying cuts. Fig. 2

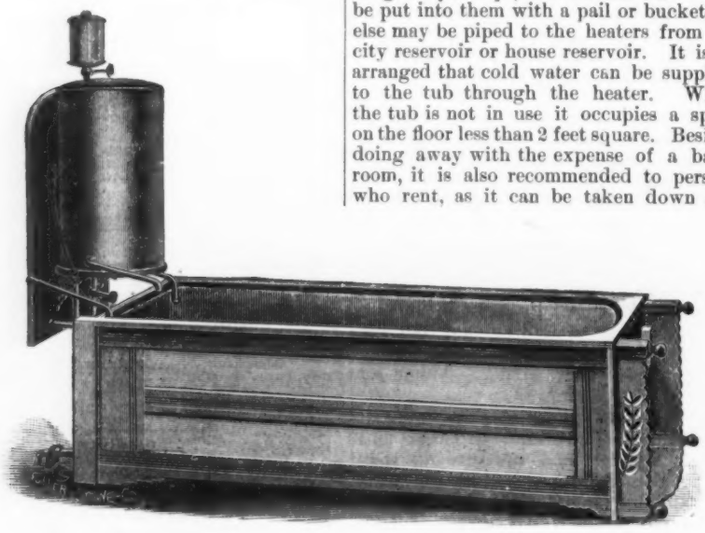


Fig. 1.—Bath-Tub Ready for Use.

shows the bath-tub folded, while Fig. 1 represents it bent down ready for use. The bath-tub is of the ordinary American pattern and is said to be manufactured from the best of materials, while the case is paneled and ornamented, making an attractive appearance when folded. Secured to the wall or side of room, at foot of tub, is a patent boiler or heater of galvanized iron, holding about 20 gallons of water, provided with gas, gasoline or kerosene oil burners underneath, which will heat the

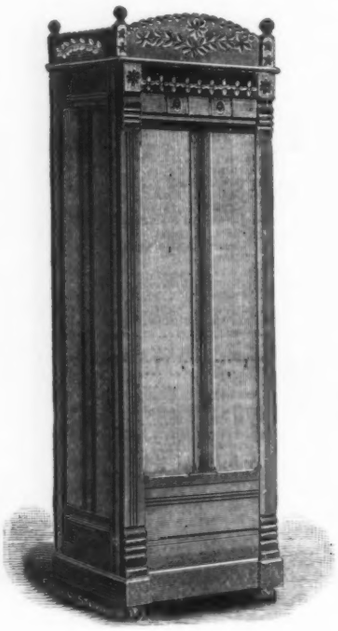


Fig. 2.—Bath-Tub Folded.

water in 20 to 30 minutes sufficiently hot for bathing purposes. All is so arranged that when the tub is folded against the wall the heater is covered and obscured from sight. The waste-water outlet is so arranged that when the tub is let down it makes connection with the waste-water pipe, and by drawing an ordinary bath-plug the water is allowed to run out and leave the tub dry. The outlet conveys the water below the floor, where it may be piped to any place desired. The tub is only 18 inches high, which is said to make it specially convenient for old people and children. The heaters, which are made from heavy galvanized sheet-iron, have hinged open tops, so that the water may be put into them with a pail or bucket, or else may be piped to the heaters from the city reservoir or house reservoir. It is so arranged that cold water can be supplied to the tub through the heater. When the tub is not in use it occupies a space on the floor less than 2 feet square. Besides doing away with the expense of a bath-room, it is also recommended to persons who rent, as it can be taken down and removed with very little trouble. There is also no necessity for hot-water supply from the range. The Goodridge tubs are made in several styles of finish.

Buchan's Patent Drain-Pipe.

One of our English exchanges gives an illustrated description of Buchan's patent rib and access pipes for drains, which we print in part below. The patentee of the pipe is Mr. W. P. Buchan, sanitary engineer of Glasgow, and the pipes are made by J. & M. Craig, of Kilmarnock. The

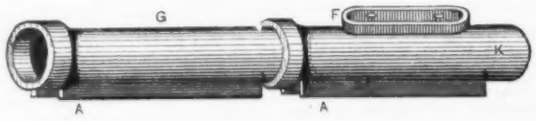


Fig. 1.—Perspective View of Buchan's Pipe.

improvement consists in making the drain-pipes with a longitudinal opening on the top, as shown in Fig. 1, the opening being about 14 inches long and wide enough to allow a man to put his head inside and inspect the pipe, to see that there are no collars of cement sticking out of the joints. The opening is closed by a strong iron lid, E, Fig. 2, the lid being made air-tight either by lime only or by Roman cement, or by lime with a thin

Fig. 2.—Pipe-Lid.

layer of Portland cement on top, so that it may be lifted when it is necessary to see or cleanse the interior of the pipe. G, Fig. 1, shows a drain-pipe with two longitudinal ribs, A, at bottom, also shown at A A, Fig. 3, which are molded along with and attached to the pipe. These ribs have the effect of greatly strengthening the pipe and also of raising it up sufficiently to allow underneath inspection. They also prevent the pipe from rolling. For greater strength the space between the ribs may be filled in with Portland cement or concrete previous to using. This strengthens the pipe greatly

Fig. 3.—Cross-Section of Pipe.

when laid in soft or yielding ground. Where an extra good job is wished and for inside houses the pipes may be laid upon a bed of concrete and surrounded with concrete except at the top, where the access-

Fig. 4.—Cross-Section through Lid.

openings are. Fig. 4 is cross-section through the access-pipe showing lid, E, in position ready to be cemented down. Fig. 5 shows an access-pipe with a single

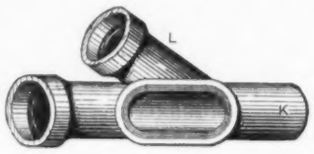
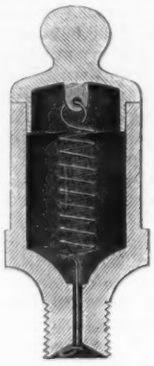


Fig. 5.—Pipe with Branch.

branch, L, which provides for examination for both the main and side drains by the same opening.

The IXL Oil-Cup.

This oil-cup is provided with a self-closing cover which does away with the necessity of screwing on the top, as is common with the ordinary oiler. As will be seen by the sectional diagram, the steel



The IXL Oil-Cup.

spring is attached to the cover, and passing down through the oil-way, is fastened in the concave-threaded end of the latter. The cup can be filled by simply lifting or

tipping the cover up sufficiently to admit the oil, and upon releasing the cover it flies back into place, where it is securely held. This feature will be appreciated by manufacturers of machinery in which there is an excessive jar. This cup is made by the Penberthy Injector Company, of Detroit, Mich.

Ideal Sash-Pulley.

The Stover Mfg. Company, Freeport, Ill., are putting on the market the sash-pulley shown in the accompanying illustration. The pulley-wheel has a cone axle cast to it under a new process which, it is claimed, greatly enhances its working qualities in point of accuracy, in the matter of durability and light running, while it renders it noiseless in operation. The bearings in case are made with reference to the cone-shaped axle of pulley, and when put to actual use the weight of the window and sash-weight applied to the sash-cord running over the pulley-wheel causes it to run to a center, or midway between the two sides of the cases, thus relieving it of contact with sides of case and overcoming friction and noise. The company make various styles of cone axle-bearing sash-pulleys, but the pulley illustrated is more particularly adapted for the mill trade, as it is readily applied with mortising-machines such as are in general use, though it may be applied by hand in the usual way.

Ideal Sash-Pulley.

Waddel's Improved Coffee-Mill.

The coffee-mill illustrated in the engravings herewith is put on the market by Jno. M. Waddel Mfg. Company, Greenfield, Ohio. This mill possesses several new features. It will be perceived that in addition to the regular revolving handle there is a handle by the use of which the mill may be held on the table or in the lap or in lifting or carrying it. Another feature to which the manufacturers direct special attention is the tin cup, which being directly under the grinding-shell collects without spilling the ground coffee. An automatic cup-slide attached to the door of the mill facilitates the removal of the cup. The grinding-shell and burr are of steel. The manufacturers refer to the large grinding capacity of the mill, as well as to its convenience and reliability. One size only is made, the cover and handles being copper-bronzed or nickel-plated, as desired. The mill is provided with a sliding cover which fits snugly

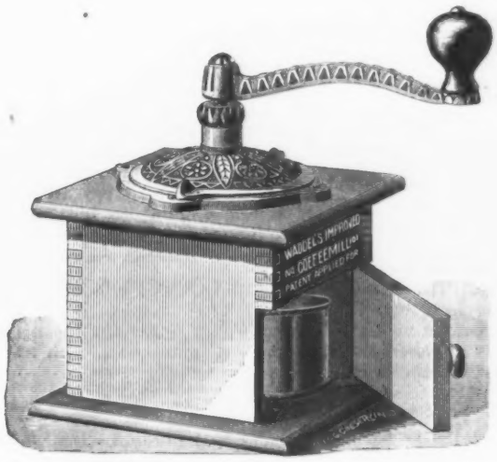


Fig. 1.—Waddel's Improved Coffee-Mill.

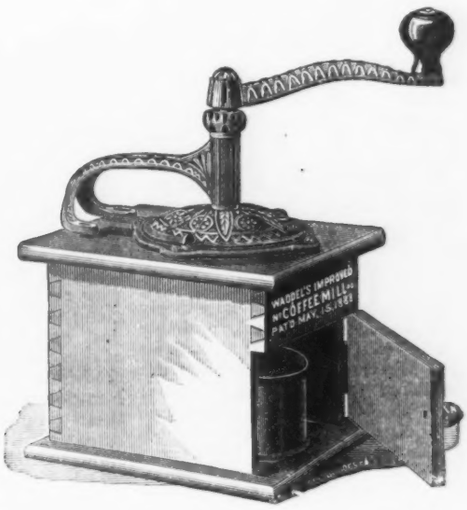


Fig. 2.—Waddel's Improved Coffee-Mill with Handle.

Cline's Monkey-Wrench.

The Goshen Fence Machine Company, Goshen, Ind., are making the monkey-wrench shown in the accompanying engraving. The fixed jaw has a shank which is provided with a rack at its back. The movable jaw sliding on this shank has in its back a recess between the upper and lower lugs of the jaw. Between these lugs is pivoted on a pivotal rod or bearing extending parallel to the shank a small cam having grooves or ribs extending partly around it, and adapted when the cam is turned to engage the teeth of the rack on the back of the shank. The cam is eccentric and on one side is provided with a small thumb-lug, which adjoins that portion of the cam which is nearest the center, and which when the cam is turned out of engagement does not track the rack. The thumb-lug is short, and when the cam is turned out of engagement the lug rests against the inner wall of the recess in the back of the movable jaw, so that a guide is provided for the operator whereby he can readily disengage the cam and keep it out of engagement while moving the sliding-jaw along the shank in adjusting the wrench to its work. The lug of the cam projects a little when it is in position, bearing against the wall of the sliding-jaw, and affords a purchase to the thumb for moving the jaw backward or forward in adjusting it. The wrench can thus be easily adjusted with one hand, the thumb doing the principal portion of the work, and when adjusted an outward movement of the thumb turns the cam to bring its swell into engagement with the rack of the shank. It will thus be seen that this wrench is a combination of a fixed jaw and rack-shank with a sliding-jaw, having a back recess opening into the longitudinal recess, and a pivoted rod arranged parallel to the rack-shank and passing through the rear of the movable jaw, having also a bearing at one end in a collar on the shank and at the other in the fixed jaw. The grooved cam has a short thumb-lug journaled on the pivoted rod and within the recess of the movable jaw, whereby the thumb may move the lever laterally to engage, adjust and secure the sliding-jaw to the rack-shank. The manufacturers are making two styles of wrenches, one for machinists' use and a cheaper style without wooden handle for shop and agricultural purposes.

Cline's Monkey-Wrench.

The simplicity of this wrench and the ease and rapidity with which it may be manipulated are points made in regard to it.

Electric motors pump the organ in eight churches in New York City, at a cost of about $10 a month for horse-power. The water motor consumed too much water, and the gas-engine was too noisy for the use desired.

The Pneumatic Torpedo-Gun.

In a recent lecture delivered before the United Service Institution of Great Britain Captain Zalinski gave a valuable account of the present character of the pneumatic gun. The caliber of the gun has been increased to 15 inches, and ten are now being made of this size, nine of which are for this Government and one for the Victorian Government. The trunnions are now placed in the usual way and not close to the breech as formerly. The air reservoirs are made of steel-ribbon tube and are consequently much reduced in weight. The steel ribbon is wound spirally on a mandrel, the successive layers being wound in opposite directions, so as to break joint, and then soldered together. If the barrels are made of steel or aluminium bronze their thickness need not exceed ½ inch, even in calibers as great as 20 inches, as the firing pressure does not exceed 1000 pounds per square inch; but as a matter of fact a greater thickness is employed, to lessen the chance of accidental damage either in transport or manipulation. It is not at present contemplated to rifle the barrel; the projectile is so long and so low in density that an exceedingly rapid twist would be required, probably 1 turn in 11 calibers, and such a twist would put a severe torsional strain both on the walls of the shell and the bore. The high explosive, moreover, with which the shell is charged would sustain an additional shock, owing to the very high angular velocity that would be impressed upon the shell, and the heat generated by friction would be an additional source of danger. It appears, however, that the accuracy of fire at present obtainable is satisfactory, as has been proved by severe official trials. The standard of accuracy demanded by the United States Naval Board in 1887 was that 50 per cent. of the shells fired should fall in a rectangle of 150 feet by 50 feet at a range of 1 mile, and this standard was surpassed, while the grouping of shots at the selected ranges of 2100 yards, 1700 yards and 360 yards was satisfactorily carried out. On another occasion a condemned schooner (the Silliman) was anchored at a range of 1864 yards, with her masts in the line of fire. This trial was thus described by Captain Zalinski:

"After firing one sand-shell and one blind-shell a shell was exploded in the water some yards from the ship, resulting in shaking out the mainmast. A second shell exploded directly under the ship amidship, breaking its back and destroying it completely. This was followed by a third shell, which struck the *débris* above water and exploded in the air, while a fourth shell was exploded in the water near the wreck. The first shell was exploded purposely some distance from the ship, while the last two were only fired to show the full control of the range. . . This accuracy of fire follows from using a uniform air-pressure, which can be absolutely gauged to within a few pounds, instead of varying several thousand pounds, as may be the case with the gun using powder. With the same amount of energy imparted to the projectile, if the latter is well and uniformly made, it must necessarily attain the same range; and unlike an ordinary smooth-bore projectile, it fits the bore in at least three circumferential lines distributed along its length, and therefore leaves the gun in the direction of the axis of the bore."

The arrangements by means of which a high explosive has been successfully used and the electric fuses of extreme ingenuity that have been devised were discussed in detail. The statement was made that during the past three years two tons of uncamphorated explosive gelatine had been safely fired. The lecturer next pointed out the various uses of his gun, and referred to the Mersey at Liverpool as a notable example of a place that could be successfully defended by it. He also claimed an important *rôle* for it in many phases of naval warfare and discussed its advantages over fixed and automobile torpedoes.

In the course of his remarks he referred to two novelties worthy of attention. The first is an electrical range-finder, the invention of Lieut. B. A. Fiske, United States Navy. Two instruments are placed on deck, as far apart as practicable, and are continuously pointed at the target by two observers, who, however, are not required to take any readings. The results are obtained by a third observer, almost automatically and continuously, at any part of the ship desired, or are indicated on a dial in the gun-room. This instrument has worked up to a range of 2600 yards with an error of 1.1 per cent.

The other novelty is a "light-buoy shell." These shells are to be arranged somewhat like the ordinary explosive shell of the gun, but are to be without charge. Upon striking the water the head, which is attached to the body by a wire rope, is made to detach itself, and going to the bottom, enables the body to float and serve as a buoy. The contact of the water ignites the buoy, which, when fired from a 15-inch gun, can be made to burn for two hours. It is proposed that these "light-buoys" should supplement or be substituted for the electric search-lights, which indicate the positions from which they are used. In the case of a ship at anchor, she might surround herself by a cordon of lights, say at a distance of one mile, with some on an interior line. Thus protected, it is claimed that she would be more likely to perceive the approach of an enemy's torpedo-boat, by means of the diffused light over a large space, than by the blinding concentrated rays of the search-light, reaching only a single narrow sector or zone and making more intense the surrounding darkness. The buoys would also afford some indication of the range. In a similar manner, forts could use them to illuminate a channel. Finally, the lecturer asserted that whether the gun be considered in an experimental stage or not, it has thrown very large charges with accuracy and to distances unattainable by other torpedoes, and that it was capable of sinking the most powerful and best-protected war vessel afloat.

The Barb Wire Trade of South America.—The following information, which will be of interest to our barb wire manufacturers, comes from English sources: "Thirty-five million kg. (34,000 gross tons) of wire fencing, representing in value about $2,000,000, imported into a single territory in one year is a somewhat handsome figure and one which certainly indicates that the trade which it represents there is worth looking after. In the Argentine Republic—the place to which we allude—the law compels property-holders to fence in their lands and keep the fences in repair when completed; hence the demand is enormous throughout the territory for wire, and the annual imports now are represented by the figures just mentioned. Belgium supplies half of these orders. Great Britain furnishes only one-quarter and France even less. About four years ago the bulk of this important trade was in the hands of British firms, but they are now unable to compete with the low-priced goods from Belgium. It is likely that the demand will continue for a considerable number of years to come and that it will even increase as the country develops. Even did the law not compel the farmers to construct fences they would be obliged, for the purposes of their own protection, to do so; and wire is the article which they would select for the purpose as being the most economical."

The United States Consul-General at St. Petersburg, C. H. Way, in a report upon Russian agriculture and the cereal trade, shows how every grain corner in the United States makes an opportunity for Russia to market her crops at remunerative prices. "The arable lands of Russia in Europe," Mr. Way says, "excluding Poland, cover an area of 450,000 square miles. The wheat-grower of Kansas and Dakota will see at a glance the area of that fertile territory, which, with the cheap labor of Russia, will always prove to be a formidable rival, and the merchants of Chicago and New York who imagine by cornering wheat that they will control the markets of the world can always take into their calculations the product of this country as an effectual check to their operations. As long as Russia exists any attempt to force the Western nations of Europe to pay artificial prices for American grain can but result in absolute failure."

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CURRENT HARDWARE PRICES.

AUGUST 7, 1889.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers drices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers, at the figures named.

Ammunition.—

Caps, Percussion, ⅌ 1000—

Hicks & Goldmark's and Union Metallic Cartridge Co.
F. L. Waterproof, 1-10's.....34@35¢
E. B. Trimmed Edge, 1-10's.....46@48¢
E. B. Grnd. Edge, Cent. Fire, 1-10's.... 46@47¢
Musket Waterproof, 1-10's.....50¢
G. D.....28¢
S. B. Genuine Imported.....45¢
Eley's E. B.....54¢ @ 55¢
Eley's D Waterproof, Central Fire...$1.60

Cartridges.

Rim Fire Cartridges.....50&5&2 %
Rim Fire Military.....15&2 %
Cent. Fire, Pistol and Rifle.....25&5&2 %
Cent. Fire, Military and Sporting 15&5&2 %
Blank Cartridges, except 22 and 32 cal., additional 10 % on above discounts.
Blank Cartridges, 22 cal., $1.75.....2 %
Blank Cartridges, 32 cal., $3.50.....2 %
Primed Shells and Bullets.....15&5&2 %
B. B. Caps, Round Ball, $1.75.....2 %
B. B. Caps, Con. Ball, Swgd., $2.00.....2%

Primers—

Berdan Primers, $1.00.....2%
B. L. Caps (for Sturtevant Shells) $1.00, 2%
All other Primers, $1.20.....2%

Shells—

First quality, 4, 8, 10 and 12 gauge 25&10&2%
First quality, 14, 16 and 20 gauge ($10 list).....30&10&2%
Star, Club, Rival and Climax brands, 20&10&2%
Seibold's Comb. Shot Shells.....15&2%
Brass Shot Shells, 1st quality.....60&2%
Brass Shot Shells, Club, Rival, Climax.. 65&2%
I X L, 10 and 12 guage.....40&5&2%
"Special," 16 gauge.....30&10&5&2%
"Special," 10 and 12 gauge.....40&10&2%
Fowler's Pat.....$3.25

Shells Loaded—

Standard. List.....40&10@40&10&10%

Wads—

U. M. C. & W. R. A.—B. E., 11 up..$2.00
U. M. C. & W. R. A.—B. E., 9&10.. 2.30
U. M. C. & W. R. A.—B. E., 7&8... 2.60
U. M. C. & W. R. A.—P. E., 11 up.. 3.10
U. M. C. & W. R. A.—P. E., 9&10.. 4.00
U. M. C. & W. R. A.—P. E., 7&8... 4.90
} 20&2%
Eley's B. E., 11 up.....$1.75
Eley's P. E., 11@20..... 2.80

Anvils.—

Eagle Anvils, ℔ ℔ 10¢.....20@20&5%
Peter Wright's.....9½¢
Armitage's Mouse Hole.....8¾¢
Armitage's Mouse Hole, Extra.11½@11½¢
Trenton.....9½@9½¢
Wilkinson's.....9½@10¢
J. & Riley Carr, Pat. Solid.....11@11½¢
Moore & Barnes Mfg. Co.....33⅓%

Anvil Vise and Drill—

Millers Falls Co., $18.00.....20%
Cheney Anvil and Vise.....25%
Allen Anvil and Vise, $3.00.....40&10%

Apple Parers—

Advance.....℔ doz $4.75
Antrim Combination.....℔ doz 5.50
Baldwin.....℔ doz 5.25
Champion.....℔ doz 7.25
Daisy.....℔ doz 4.00
Eureka, 1888.....each 17.00
Family Bay State.....℔ doz 12.00
Favorite.....℔ doz 5.00
Gem.....℔ doz 5.25
Gold Medal.....℔ doz 4.00
Ideal.....℔ doz 4.00
Improved Bay State.....℔ doz 30.00
Little Star.....℔ doz 4.50
Monarch.....℔ doz 13.50
New Lightning.....℔ doz 5.50
Oriole.....℔ doz 4.00
Penn.....℔ doz 4.00
Perfection.....℔ doz 4.00
Pomona.....℔ doz 4.00
Rocking Table.....℔ doz 6 00
Turntable.....℔ doz 4.50
Victor.....℔doz 13.50
Waverly.....℔ doz 4.00
White Mountain.....℔ doz 4.50
72.....℔ doz 4.25
76.....℔ doz 5.75
78.....℔ doz. 6.50

Augers and Bits—

Douglass Mfg. Co.
Wm. A. Ives & Co.
Humphreysville Mfg. Co.
French, Swift & Co. (F. H. Beecher, Rockford Bit Company
} 70%
Cook's, Douglass Mfg. Co.....55 %
Cook's, N. H. Copper Co.50&10&50&10&5%
Ives' Circular Lip.....60%
Patent Solid Head.....30%
C. E. Jenning & Co., No. 10, extension lip.....40%
C. E. Jennings & Co., No. 30.....60%
C. E. Jennings & Co., Auger Bits, ℔ set, 32½ quarters, No. 5, $5; No. 30, $3.50.20%
Lewis' Patent Single Twist.....45%
Jennings' Augers and Bits.....25%
Imitation Jennings' Bits.....60@60&5%
Pugh's Black.....20%
Rockford, Jenning's Pattern.....60%
Car Bits.....50&10@60%
L Hommedieu Car Bits.....15&10%
Forstner Pat. Auge Bits.....10%

Hollow Augers—

Ives'
French, Swift & Co.
Douglass'
} 33⅓@33⅓&10%
Bonney's Adjustable, ℔ doz $48...40&10%
Stearns'.....20&10%
Ives' Expansive, each $4.50.....50&5%
Universal Expansive, each $4.50.....20%
Wood's.....25@25&10%

Expansive Bits—

Clarks' small, $18; large, $26...35@35&5%
Ives' No. 4, ℔ doz $60.....40%
Swan's.....40%
Steer's, No. 1, $26; No. 2, $22.....35%
Stearns' No. 2, $48.....20%

Gimlet Bits—

Common.....℔ gross $2.75@$3.25
Diamond.....℔ doz $1.10.....25&10%
Bee.....25@25&5%
Double Cut, Shepardson's.....45@45&10%
Double Cut, Ct. Valley Mfg. Co...30&10%
Double Cut, Hartwell's, ℔ gro.....$5.25
Double Cut, Douglass'.....40&10%
Double Cut, Ives'.....60@60&10%

Bit Stock Drills—

Morse Twist Drills.....50&10&5%
Standard.....50&10&5%
Cleveland.....50&10&5%
Syracuse, for metal.....50&10%
Syracuse, for wood (wood list).30@30&5%
Williams' or Holt's, for metal.50&10&10%
Williams' or Holt's, for wood.. ..40&10%

Ship Augers and Bits—

L'Hommedieu's.....15&10@15&10&5%
Watrous'.....15&10@15&10&10%
Snell's.....15&10@15&10&5%
Snell's Ship Auger Patt'n Car Bits. 15&10@15&10@5%

Awl Hafts—

Sewing, Brass Fer. ℔ gr, $3.50.....45&10%
Pat. Sewing, Short. $1.00 ℔ doz.....40&10%
Pat. Sewing, Long.....℔ doz $1.20
Pat. Peg, Plain Top. ℔ gr $10.00...45&10%
Pat. Peg, Leather Top. ℔ gr $12.00.45&10%

Awls, Brad Sets, &c—

Awls, Sewing, Common ℔ gr $1.70, 35%
Awls, Should. Peg. ℔ gr $2.45, 40@40&10%
Awls, Pat. Peg...℔ gr 63¢.... 40@40&10%
Awls, Shouldered Brad..2.70 ℔ gr.....35%
Awls, Handled Brad...$7.50 ℔ gr.....45%
Awls, Handled Scratch ℔ gr, $7.50.35&10%
Awls, Socket Scratch. ℔ doz, $1.50.25@30%

Awl and Tool Sets—

Aiken's Sets, Awls and Tools, No. 20, ℔ doz $10.00.....55&10%
Gray's Adj. Tool Hdls., Nos. 1, $12; 2, $18; 3, $12; 4, $9.....25@25&10%
Miller's Falls Adj. Tool Hdls.. Nos. 1, $12. 2, $18.....25%
Henry's Combination Haft...℔ doz $6.50
Brad Sets, No. 42, $10.50; No. 43, $12.50..70&10&5%
Stanley's Excelsior: No. 1, $7.50; No. 2, $4.00; No. 3, $5.50.....30&10%

Axes—

Makers' and Special Brands—

First quality.....℔ doz $6.00@$6.50
Others.....℔ doz $5.50@$5.75

Axle Grease—

Fraser's.....Keg ℔ ℔ 4¢, Pail ℔ ℔ 5¢
Fraser's, in boxes.....℔ gr $9.50
Dixon's Everlasting, in bxs...℔ doz 1 ℔ $1.20; 2 ℔ $2.00
Dixon's Everlasting....10-℔ pails, ea. 85¢
Lower grades, special brands, ℔ gr $5.50@$7.00

Axles—

No. 1.....4¢@4½¢, No. 2 5¼¢@5½¢
Nos. 7 to 14.....55&5%
Nos. 15 to 18.....47½%
Nos. 19 to 22.....70%
National Tubular Self-Oiling: Standard Farm (1 to 5) and Special Farm (A1 to A5):
Less than 10 sets.....33⅓%
Over 10 sets.....33⅓&5%

Bag Holders.—

Sprengle's Pat.....℔ doz $18.....60%

Balances—

Spring Balances.....50%
Common 24-℔.....℔ doz $1.50.....50%
Chatillon's Spring Balances.....50%
Chatillon's Circular Spring Balances.60%

Bells—

Hand—

Light Brass.....70&10 @ 75%
Extra Heavy.....60&10%
White Metal.....60&10&10%
Silver Chime.....33⅓&10%
Globe (Cone's Patent).....25&10@35%

Door—

Gong, Abbe's.....33⅓&10%
Gong, Yankee.....45&10%
Gong, Barton's.....40&10@50%
Crank, Taylor's.....25&10%
Crank Brooks'.....50&10&2%
Crank, Cone's.....10%
Crank, Connel's.....20&10%
Lever, Sargent's.....60&10%
Lever, Taylor's Bronzed or Plated....net
Lever, Taylor's Japanned.....25&10%
Lever, R. E. M. Co.'s.....50&10&2%
Pull, Brook's.....50&10&2%
Pull, Western.....25&10%

Cow—

Common Wrought.....60&10%
Western.....20&10%
Western, Sargent's list.....70&10%
Kentucky, "Star".....20&10%
Kentucky, Sargent's list.....70&10%
Dodge, Genuine Kentucky....70@70&10%
Texas Star.....50&10@50&10&5%
Call.....40@40&5%
Farm Bells.....℔ ℔ 3¢@3½¢
Steel Alloy Church and School Bells..40%

Bellows—

Blacksmiths'.....60@60&5%
Molders'.....40@40&10%
Hand Bellows.....40&10@50%

Belting, Rubber—

Common Standard.....70&10%
Standard.....70&70&5%
Extra.....60&5@60&10%
N. Y. B. & P. Co., Carbon.....60&10&5%
N. Y. B. & P. Co., Diamond.....50&10%

Bench Stops—

Morrill's.....℔ doz $9, 50%
Hotchkiss's.....℔ doz $5, 10@10&10%
Weston's, No. 1, $10; No. 2, $9.25&10&5%
McGill's.....℔ doz $3.....10%

Bits—

Auger, Gimlet, Bit Stock, Drills, &c., see Augers and Bits.

Bit Holders—

Extension,
Barber's, ℔ doz $15.00.....40@40&10%
Ives, ℔ doz $20.00.....60&5@60&10%
Diagonal.....℔ doz $24.00, 40%
Angular.....℔ doz $24.00, 40&5%

Blind Adjusters—

Domestic.....℔ doz $3.00, 33⅓%
Excelsior.....℔ doz $10.00.....50&10&2%
Washburn's Self-Locking.... .20@20&10%

Blind Fasteners

Mackrell's, ℔ doz. $1.00.....20@20&10%
Van Sand's Screw Pat., $15 ℔ gr..60&10%
Van Sand's Old Pat., $15.00 ℔ gr..55&10%
Washburn's Old Pattern, ℔ gr.....$9.00
Merriman's.....new list
Austin & Eddy No. 2008, ℔ gr.....$9.00
Security Gravity, ℔ gr.....$9.00

Blind Staples—

Barbed, ½ in. and larger.... ..℔ ℔ 7½@8¢
Barbed, ⅝ in.....℔ ℔ 8½@9¢

Blocks—

Ordinary Tackle, list May 20, 1889, 40&10@50%
Cleveland Block Co., Mal. Iron.....50%
Moore's Novelty, Mal. Iron.....50%

Bolts—

Door and Shutter—

Cast Iron Barrel, Square, &c..70@70&10%
Cast Iron Shutter Bolts.....70@70&10%
Cast Iron Chain (Sargent's list)....65&10%
Ives' Patent Door Bolts.....60%
Wrought Barrel.....70@70&10%
Wrought Square.....70@70&10%
Wr't Shutter, all Iron, Stanley's..60&10%
Wr't Shutter, Brass Knob, " ..40&10%
Wr't Shutter, Sargent's list.....60&10%
Wr't Sunk Flush, Sargent's list....55&10%
Wr't Sunk Flush, Stanley's list....50&10%
Wr't B.K.Flush, Com'n " ...55&10%

Carriage, Machine, &c.—

Com. list June 10, '84.....75&10&2%
Genuine Eagle, list Oct., '84...75&10@80%
Phila. pattern, list Oct. 7, '84..80@80&10%
R.B.&W., old list.....70%
Machine, according to size.....80@80&5%
Bolt Ends, according to size....80@80&5%

Tire—

Common, list Feb. 28, '83.....70%
Port Chester Bolt and Nut Company:
Empire, list Feb 28, '83.....70%
Phila., list Oct. '84.....82½%
Keystone, Philadel., list Oct. '84....80%
Norway, Phila., list Oct. '84 ...75&10%
American Screw Company:
Norway, Phil., list Oct. 16, '84....75&10%
Eagle, Phil., list Oct. 16, '84.....80%
Philadel., list Oct. 16, '84.....82½%
Bay State, list Feb. 28, '83.....70%
R.B.&W., Philadel., list Oct. 16, '84...82½%

Stove and Plow—

Stove.....65%
Plow.....60&5%
R. B. & W., Plow.....55%

Borax.....℔ ℔ 9½@10½¢

Boring Machines—

	Without Augers.	Upright.	Angular.
Douglas	$5.50	$6.75	.....50%
Snell's, Rice's Pat.	5.50	6.75	...40&10&10
Jennings	5.50	6.75	...45@45&10
Other Machines...	2.35	2.75	.....net
Phillips' Patent with Augers ...	00	7.50	.....

Bow Pins—

Humason, Beckley & Co.'s.....60&10%
Sargent & Co's....$17 and $18.....60&10%
Peck, Stow & W. Co. 50&10@50&10&5%

Braces.—

Barber's,
Nos. 10 to 16.....50%
Nos. 30 to 33.....50%
Nos. 40 to 63.....50&10%
Barker's,
Nos. 8, 10 and 12.....75&10@80%
Plated, Nos. 8, 10 and 12....65&10@70%
Osgood's Ratchet.....40&10@50%
Spofford's.....50&5@50&10%
Ives' New Haven Novelty.....70@70&5%
New Haven Ratchet.....60&5@60&10%
Barber Ratchet.....60&5@60&10%
Barbers.....60&5%
Spofford.....60&5@60&10%
Common Ball, American.....$1.00@$1.10
Bartholomew's,
Nos. 25, 27 and 30.....50&10@60&5%
Nos. 117, 118, 119.....70@70&5%
Amidon's
Barker's Imp'd Plain.....75&10@80%
Barker's Imp. Nickeled.....65&10@70%
Ratchet.....75&10@80%
Eclipse Rachet.....60%
Globe Jawed.....40@40&10%
Corner Brace.....40@40&10%
Universal, 8 in., $2.10 ;10 in.....$2.25
Buffalo Ball.....$1.10@$1.15
P. S. & W.....50&10%

Brackets—

Shelf plain, Sargent's list, 55&10@55&10&10%
Shelf, fancy, Sargent's list, 60&10@60&10&10%
Reading, plain.....50&10@60&10&5%
Reading, Rosette.....60&10@60&10&10%

Bright Wire Goods.....87½

Broilers—

Henis' Self-Basting. } Inch..... 9 10 9x11
} Per doz...$4.50 5.50 6.50

Buckets—See Well Buckets and Pails.

Bull Rings—

Union Co. Nut.....55%
Sargent's.....60⅝&10@70&5%
Hotchkiss' low list.....30%
Humason, Beckley & Co.'s.....70%
Peck, Stow & W. Co's..50&10@50&10&10%
Ellrich Hdw. Co., White Metal, low list. 50@50&10%

Butcher's Cleavers—

Bradley's.....25@30%
L. & I. J. White.....20&5%
Beatty's.....40@40&5%
New Haven Edge Tool Co.'s.....40%
P. S. & W.....33⅓&5@33⅓&10%
Foster Bros.....30%
Schulte, Lohoff & Co.....40@40&5%

Butts—

Brass—

Wrought Brass.....75@75&10%
Cast Brass, Tiebout's'.....33⅓%
Cast Brass, Corbin's, Fast.....33⅓&10%
Cast Brass, Loose Joint.....33⅓&10%

Cast Iron—

Fast Joint, Narrow.....50&10&5@60&5%
Fast Joint, Broad.....55&10&5@60&10%
Loose Joint.
Loose Joint, Japanned.
Loose Joint, Jap. with Acorns..
Parliament Butts.
Mayer's Hinges.
Loose Pin, Acorns.
Loose Pin, Acorns, Japanned...
Loose Pin, Acorns, Japanned, Plated Tips
} ..70&10@75%

Wrought Steel—

Fast Joint, Narrow.
Fast Joint, Lt. Narrow.
Fast Joint, Broad.
Loose Joint, Broad.
Table Butts, Back Flaps, &c.
Inside Blind, Regular.
Inside Blind, Light.
Loose Pin.
} .70&10@75%
Bronzed Wrought Butts.....50%

Calipers—

See Compasses.

Calks, Toe—

Gautier.....℔ ℔ 5½@6¢
Dewicks (Burke).....℔ ℔ 5½@6¢

Can Openers—

Messenger's Comet.....℔ doz $3.00,'25%
American.....℔ gross $3.00
Duplex.....doz 25¢, 15@20%
Lyman's.....℔ doz $3.75, 20%
No. 4 French.....℔ doz $2.25, 55@60%
No. 5, Iron Handle.....℔ gr $6.00, 45@50%
Eureka.....℔ doz $2.50, 10%
Sardine Scissors.....℔ doz $2.75@3.00
Star.....℔ doz $2.75
Sprague, No. 1, $2.00; 2, $2.25; 3, $2.50 50&10&10%
World's Best, ℔ gross, No. 1, $12.00 No. 2, $24.00; No. 3, $36.00.....50&10%
Universal, ℔ doz $3.00.....35&5%
Domestic, ℔ doz $2.50.....45%
Champion ℔ doz $2.00.....50

Cards—
Horse & Curry.....10&10@10&10&10%
Cotton.....10@10&10%
Wool.....10@10&10%

Carpet Stretchers—
Cast Steel, Polished.....₱ doz $2.25
Cast Iron, Steel Points.....₱ doz 80¢
Socket.....₱ doz $1.75
Bullard's.....25@25&10%

Carpet Sweepers—
Bissell No. 5.....₱ doz $17.00
Bissell No. 7 New Drop Pan.₱ doz $19.00
Bissell, Grand.....₱ doz $36.00
Grand Rapids.....₱ doz $24.00
Crown Jewel, No. 1, $18.00; No. 2, $19.00; No. 3, $20.00
Magic.....₱ doz $15.00
Jewel.....₱ doz $17.00
Improved Parlor Queen, Nickeled.....₱ doz $27.00
Japanned.....₱ doz $24.00
Excelsior.....₱ doz $22.00
Garland.....₱ doz $18.00
arlor Queen.....₱ doz $24.00
Housewife's Delight.....₱ doz $15.00
Queen.....₱ doz $16.00
Queen, with band.....₱ doz $18.00
King.....₱ doz $30.00
Weed, Improved.....₱ doz $18.00
Hub.....₱ doz $16.00
Cog-Wheel.....₱ doz $16.00
Conqueror.....₱ doz $22.00
Easy.....₱ doz $22.00
Monarch.....₱ doz $22.00
Goshen.....₱ doz $21.00
Advance.....₱ doz $18.00
Ladies' Friend, No. 1, ₱ doz, $15.00; No. 2.....₱ doz $16.00
American.....₱ doz $15.00
Grand Republic.....₱ doz $35.00

Cartridges—
See Ammunition.

Casters—
Bed..... } Brass....55@55&10%
Plate..... } Others...60@60&10%
Shallow Socket.....
Deep Socket.....40&10%
Yale Casters, list May, 1884...30&10@40%
Yale, Gem.....60@60&5%
Martin's Patent (Phœnix).....45&10@50%
Payson's Anti-friction.....60@60&10%
Giant Truck Casters.....30%
Stationary Truck Casters.....50&10%
Socket Truck Casters.....50%

Cattle Leaders—
Humason, Beckley & Co.'s.....70%
Sargent's.....60%&10%
Hotchkiss.....30%
Peck, Stow & W. Co.....50&10%

Chain—
Trace, 6½-10-2, exact, ₱ pair, $1.03.....50&10@50&10&5%
Trace, 6½-10-3, exact, ₱ pair 92¢.....50&10@50&10&5%
Trace, 7-10-2, exact, ₱ pair $1.11.....50&10@50&10&5%
NOTE.—Traces, "Regular" sizes, 3¢ net ₱ pair less than exact.
Log, Fifth, Stretcher, and other fancy Chains, List Nov. 1, 1884 50&10@50&10&5%
American Coil, in cask lots,

3-16	¼	5-16	⅜	7-16	½	⅝	¾
$8.25	6.00	5.50	4.25	4.10	3.90	3.60	3.40

Less than cask lots, add ½¢@½¢ ₱ ℔.
German Coil, list of June 20, 1887 50&10&5@60%
German Halter Chain, list of June 20, 1887.....50&10&5@60%
Covert Halter.....60&2%
Covert Traces.....35@2%
Oneida Halter Chain.....60@60&5%
Galvanized Pump Chain.....₱ ℔ 5½@6¢
Jack Chain, Iron.....75@75&5%
Jack Chain, Brass.....70@70&5%

Chalk—
White.....₱ gr 50¢
Red.....₱ gr 70¢
Blue.....₱ gr 85¢
See also Crayons.

Chalk Lines—
See Lines.

Chisels—
Socket Framing and Firmer.
P. S. & W..... } 75&10 @ 75&
New Haven..... } 10&5%
Witherby..... } 75&10 @ 75&
Mix..... } 10&5%
Ohio Tool Co..... } 75&10 @ 75&
Douglass.....75@75&5%
Buck Bros.....30%
Merrill.....60&10@60&10&5%
L. & I. J. White.....30@30&5%
Tanged and Miscellaneous.
Tanged Firmers.....40&10@50%
Butchers'.....$4.75@$5.00
Spear & Jackson's.....$5 to £
Buck Bros.....30%
Cold Chisels, ₱ ℔.....16@19¢

Chucks—
Beach Pat.....each, $8.00.....20%
Morse's Adjustable, each, $7.00, 20@20&5%
Danbury.....each, $6.00, 30@30&5%
Syracuse, Bals Pat.....25%
Skinner's Pat. Drill Chucks.....30%
Skinner's Independent Lathe Chucks.40%
Skinner's Pat. Comb. Chuck.....40%

Clamps—
R. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Gray's.....20%
Adjustable, Lambert's.....20%
Adjustable, Snow's.....40&5%
Adjustable, Hammers.....15%
Adjustable, Stearn's.....20&10%
Stearn's Adjustable Cabinet and Corner.....20&10%
Cabinet, Sargent's.....60%&10%
Carriage Makers', Sargent's.....70&10%
Eberhard Mfg. Co.....40&5@40&10%
Warner's.....40&10@40&10&5%
Saw Clamps, see Vises.

Clips—
Norway, Axle, ½ & 5-16.....55&5&5%
2nd grade Norway Axle, ¼ & 5-16..65&5%
Superior Axle Clips.....66%&5&70%
Norway Spring Bar Clips, 5-16..60&5&5%
Wrought-Iron Felloe Clips.....₱ ℔, 5½¢
Steel Felloe Clips.....₱ ℔, 5¢
Baker Axle Clips.....25%

Cockeyes.....50%

Cocks, Brass.
Hardware list.....50&2%

Coffee Mills—
Box and Side, List Jan. 1, 1888.....60&2%
American, Enterprise Mfg Co.20&10@30%
The Swift, Lane Bros.....20&10%

Compasses Dividers, &c—
Compasses, Calipers, Dividers.70@70&10%
Bemis & Call Co.'s
Dividers.....60&5%
Compasses & Calipers.....50&5%
Wing and Inside or Outside.....50&5%
Double.....60%
(Call's Pat. Inside).....30%
Excelsior.....50%
J. Stevens & Co.'s.....25&10%
Starrett's
Spring Calipers and Dividers 25&10&10%
Lock Calipers and Dividers.....25&10%
Combination Dividers.....25&10%

Coopers' Tools—
Bradley's.....20%
Barton's.....20@20&5%
L. & I. J. White.....20&5%
Albertson Mfg. Co.....25%
Beatty's.....30%
Sandusky Tool Co.....30@30&5%

Corkscrews—
Humason & Beckley Mfg. Co..40@40&10%
Clough's Pat.....33⅓@33⅓&5%
Howe Bros & Hulbert.....35%

Cork Knives and Cutters—
Bradley's.....10%
Wadsworth's.....25%

Cradles—
Grain.....50&2%

Crayons.
White Crayons, ₱ gr 12¢@12½¢.....10%
D. M. Stewart Mfg. Co., Metal Workers, ₱ gr, $2.50.....25%
D. M. Stewart Mfg. Co., Rolling Mill, ₱ gr, $2.50.....25%
See also Chalk.

Crow Bars—
Cast Steel.....₱ ℔ 4¢
Iron, Steel Points.....₱ ℔ 3½¢

Curry Combs—
Fitch's.....50&10@50&10&10%
Rubber per doz $10.00.....20%
Perfect.....50%

Curtain Pins—
Silvered Glass.....net
White Enamel.....net

Cutlery—
Beaver Falls & Booth's.....33⅓
Wostenholme.....$7.75 to £

Dampers, &c—
Dampers, Buffalo.....40&10%
Buffalo Damper Clips.....40&10%
Crown Damper.....40%
Excelsior.....40&10%

Dividers—
See Compasses.

Dog Collars—
Embossed, Gilt, Pope & Steven's list 30&10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%

Door Springs—
Torrey's Rod, regular size....₱ doz $1.30
Gray's, ₱ gr., $20.00.....20%
Bee Rod ₱ gr., $20.00.....20%
Warner's No. 1, ₱ doz, $2.50; No. 2, $3.30.....40&10@50%
Gem (Coil), list April 19, 1886.....10%
Star (Coil), list April 19, 1886.....20%
Victor (Coil).....60@60&10%
Champion (Coil).....60&10@60&10&10%
Philadelphia, 5 in., $5.00; 8 in., $7.75..%
Cowell's....No. 1, ₱ doz, $18.00; No. 2, $15.00.....50%
Rubber, complete, ₱ doz, $4.50....55&10%
Hercules.....50%
Shaw Door Check and Spring.25@30@35%

Drawing Knives—
Witherby..... } 75&10 @ 75&10
P. S. & W..... } 75&10 @ 75&10
Mix..... } 75&10 @ 75&10
New Haven..... } 75&10 @ 75&10
&5%
Merrill.....60&10@60&10&5%
Douglas.....75@75&5%
Watrous.....15&10@25%
L. & I. J. White.....20&5%
Bradley's.....35%
Adjustable Handle.....25@33⅓%
Wilkinson's Folding.....25@25&5%

Drills and Drill Stocks—
Blacksmiths'.....each $1.75
Blacksmiths' Self-Feeding, each $7.50.20%
Breast, P. S. & W.....40&10%
Breast, Wilson's.....30&5%
Breast, Millers Falls.....each $3.00, 25%
Breast, Bartholomew's.....each $2.50, 25&10@40%
Ratchet, Merrill's.....20@20&5%
Ratchet, Ingersoll's.....25%
Ratchet, Parker's.....20@20&5%
Ratchet, Whitney's.....20&10%
Ratchet, Weston's.....20@25%
Ratchet, Moore's Triple Action...25@30%
Ratchet, Curtis & Curtis.....30%
Whitney's Hand Drill, Plain, $11.00; Adjustable, $12.00.....20&10%
Wilson's Drill Stocks.....10%
Automatic Boring Tools...$1.75@$1.85

Twist Drills—
Morse.....50&10&5%
Standard.....50&10&5%
Syracuse (Metal list).....50&10%
Cleveland.....50&10&5%
Williams.....50&10&10%
New Process.....50&10&5%

Drill Bits.—See Augers and Bits

Drill Chucks.—See Chucks.

Dripping Pans—
Smallsizes.....₱ ℔ 6¾¢
Large sizes.....₱ ℔ 6¼¢

Egg Beaters.
Dover.....₱ doz $1.50
National, ₱ doz $4.50.....33⅓%
Family (T. & S. Mfg. Co.), ₱ gro $17.00 $18.00
Duplex (Standard Co.).....₱ gro $15.00
Rival (Standard Co.).....₱ gro $12.00
Large Duplex (Standard Co.), ₱ doz $4.50
Triumph (T. & S. Mfg. Co.), ₱ gro $10.50 @$11.50
Advance, No. 1.....₱ gro $10.50
Advance, No. 2.....₱ gro $10.00
Bryant's.....₱ gro $14.00
Ayres' Spiral.....₱ gro $5.00
Double (H. & R. Mfg. Co).....₱ gro $16.20
Easy (H. & R. Mfg. Co.).....₱ gro $14.00
Triple (H. & R. Mfg. Co.)....₱ gro $16.20
Spiral (H. & R. Mfg. Co.).....₱ gro $4.50
Paine, Diehl & Co.'s.....₱ gro $24.00

Egg Poachers—
Buffalo Steam Egg Poachers, ₱ doz, No. 1, $6.00; No. 2, $9.00.....25%

Electric Bell Sets.—
Wollensak's.....20%
Bigelow & Dowse.....20%

Emery— No. 4 to 46 gr. / No. 54 to 150 gr. Flour, CF / F FF.

Kegs, ₱ ℔	4½¢	5 ¢	2½¢
½ kegs, ₱ ℔	4¾¢	5¼¢	2¾¢
¼ kegs, ₱ ℔	5 ¢	5½¢	3 ¢
10-℔ cans, 10 in case	6 ¢	6½¢	5 ¢
10-℔ cans, less than 10	10 ¢	10 ¢	7½¢

Enameled and Tinned Ware—
See Hollow-Ware.

Escutcheon Pins—
Iron, list Nov. 11, 1885..50&10@50&10&5%
Brass.....60@60&5%

Escutcheons.
Door Lock....Same dis as Door Locks.
Brass Thread.....60@60&10%
Wood.....25%

Faucets.—
Fenn's.....40%
Bohren's Pat. Rubber Ball.....25%
Fenn's Cork Stops.....33⅓%
Star.....60%
Frary's Pat. Petroleum.....40&5&2%
B. & L. B. Co.
West's Lock, Open and Shut Key....50%
Star, Metal Plug, new list.....40%
Lockport, Metal Plug, reduced list..60%
Metallic Key, Leather Lined....60&10@ 60&10&10%
Cork Lined.....70&5@70&10%
Burnside's Red Cedar.....50%
Burnside's Red Cedar, bbl lots....50&10%
John Sommers'
Peerless Best Block Tin Key.....40%
IXL, list quality, Cork Lined.....50%
Diamond Lock.....40%
Perfection, Fla. Red Cedar.....50%
Goodenough Cedar.....50%
Boss Metallic Key.....50%
Reliable Cork Lined.....60%
Western Pattern Cork Lined.....50%
Self-Measuring
Enterprise, ₱ doz $50.00.....20&10%
Lane's, ₱ doz $36.00.....25&10%
Victor, ₱ doz $36.00.....25 &10%

Felloe Plates.....₱ ℔ 6@6½¢

Fifth Wheels.—
Derby and Cincinnati.....45&5%

Files—
Domestic—
Nicholson Files, Rasps, &c. 60&10@60&10&5%
Nicholson (X. F.) Files.....25%
Nicholson's Royal Files (Seconds).....75% (extra prices on certain sizes)
Other makers, best brands 60&10@60&10&10%
Fair brands.....60&10&10@70%
Second quality.....70&10@75&10%
Nicholson's Horse Rasps. ..60&10@60& 10&5%
Heller's Horse Rasps.....50&7½@50&10%
McCaffrey's Horse Rasps.....50&10%
Chelsea Horse Rasps, Hand Cut...50&10%
Imported—
J. & Riley Carr....List, April 1, 1883, 15%
J. & Riley Carr Horse Rasps.....10%
Moss & Gamble....List, April 1, 1883, 15%
Butcher.....Butcher's list, 20%
Stubs.....Stubs list, 25@30%
Turton's.....Turton's list, 20@25%
Greaves' Horse Rasps..American list, 60%

Fluting Machines—
Knox, 4½-inch Rolls.....$3.25 each } 35%
Knox, 6-inch Rolls.....$3.60 each } 35%
Eagle, 3½-inch Roll, $2.15.....35%
Eagle, 5½-inch Roll, $2.85.....35%
Crown, 4½ in., $3.50; 6 in., $4.00; 8 in., $6.50 each.....35%
Crown Jewel, 6 in.....$3.50 each, 35%
American, 5 in., $3.00; 6 in., $3.40; 7 in., $4.50 each.....35%
Domestic Fluter.....each, $1.50
Geneva Hand Fluter, White Metal ₱ doz $12, 25%
Crown Hand Fluter, Nos. 1, $15.00; 2, $12.50; 3, $10.00.....30%
Shepard Hand Fluter, No. 85 ₱ doz $15.30.....40%
Shepard Hand Fluter, No. 110 ₱ doz $11.00.....40%
Shepard Hand Fluter, No. 95 ₱ doz $8.00.....40%
Clark's Hand Fluter, ₱ doz $15.00.....35%
Combined Fluter and Sad Iron, ₱ doz $15.00.....30%
Buffalo.....₱ doz $10.00.....10%

Fluting Scissors—.....45%

Fodder Squeezers—
Blair's.....₱ doz $2.00
Blair's "Climax".....₱ doz $1.25

Forks—
Hay, Manure, &c., Asso. List.....65%
Hay, Manure, &c., Phila. List 60@60&5%
Plated, see Spoons.

Freezers, Ice Cream—
Buffalo Champion.....65&65&5%
Shepard's Lightning.....65 @ 65&5%
White Mountain.....50&20&5%
New Arctic.....50&40&5%
American.....60%
Gem.....65%
Blizzard.....70%
Double Action Crown.....60%
Crown.....60%
Star.....60%
Peerless and Giant.....60&10
Zero and Pet.....65&10
Boss.....65&10&10
Keystone, each, $1.50.....25%

Fruit and Jelly Presses—
Enterprise Mfg. Co.....20&10@30%
Henis.....₱ doz $2.50
Shepard's Queen City.....40%

Fry Pans—

High List					
No.	0	1	2	3	4
₱ doz..	$3.75	$4.70	$5.30	$5.95	$6.55
No.	5	6	7	8	
₱ doz	$7.50	$8.75	$10.00	$11.25	

Low List					
No.	0	1	2	3	4
₱ doz..	$3.00	$3.75	$4.25	$4.75	$5.25
No.	5	6	7	8	
₱ doz	$6.00	$7.00	$8.00	$9.00	

Fuse— ₱ 1000 ft
Common Hemp Fuse, for dry ground.$2.70
Common Cotton Fuse, for dry ground 2.85
Single Taped Fuse, for wet ground.. 4.25
Double Taped Fuse, for very wet gr. 5.40
Triple Taped Fuse, for very wet gr.. 6.50
Small Gutta Percha Fuse, for water. 7.50
Large Gutta Percha Fuse, for water.12.00

Gauges—
Marking, Mortise, &c.....60&10%
Starrett's Surface, Center and Scratch, 25&10%
Wire, low list.....10&10%
Wire, Wheeler, Madden & Co.....10%
Wire, Morse's.....50@50&5%
Wire, Brown & Sharpe's.....10@20%

Gimlets—
Nail and Spike.....50&10&5%
"Eureka" Gimlets.....40&10%
"Diamond" Gimlets.....₱ gr $5.00
Double Cut, Shepardson's.....45@45&5%
Double Cut, Ives'.....60@60&5%
Double Cut, Douglass'.....40&10%
"Bee," ₱ gr $12.....25@25&5%

Glue—
Le Page's Liquid.....25@25&5%
Upton's Liquid.....35%
Le Page & Co.'s Improved Process 25@25&5%

Glue Pots—
Tinned.....40%
Enameled.....40&5%
Family, Howe's "Eureka".....40%
Family, L. F. C.'s "Handy".....50%

Grindstones—
Small, at factory.....₱ ton $7.50@9.00

Grindstone Fixtures—
Sargent's Patent.....70&10%
Reading Hardware Co.....30&10%

Hack Saws.—
See Saws.

Halters—
Covert's, Rope, ½-in. Jute.....50&2%
Covert's, Rope, ½-in. Hemp.....50&2%
Covert's Adj. Rope Halters.....40&2%
Covert's Hemp Horse and Cattle Tie, 50&2%
Covert's Jute Horse and Cattle Ties, 60&10&2%

Hammers—
Handled Hammers—
Maydole's, list Dec. 1, '85.....25&10@35%
Buffalo Hammer Co.... } List Jan. 15, '87
Humason & Beckley... } List Jan. 15, '87
Atha Tool Co..... } List Jan. 15, '87 50@50&10%
Fayette R. Plumb.....40&10@50%
C. Hammond & Son.....40&10@50%
Verree.....5%
Magnetic Tack, Nos. 1, 2, 3, $1.25, 1.50 & 1.75.....30&10%
Nelson Tool Works.....40&10%
Warner & Nobles.....20@25
Peck, Stow & Wilcox.....40%
Sargent's.....33⅓&10%
Heavy Hammers and Sledges—
3 ℔ and under.....₱ ℔ 40¢ } 60&10
3 to 5 ℔.....₱ ℔ 36¢ } 60&10
Over 5 ℔.....₱ ℔ 30¢ } 60&10 @ 70%
Wilkinson's Smiths.....10½¢@11¢ ₱ ℔

Handcuffs and Leg Irons—
R. I. Tool Co., Handcuffs, $15.00 ₱ doz 10%
R. I. Tool Co., Leg Irons, $25.00 ₱ doz 10%
Tower's.....25%
Daley's Improved Handcuffs: 2 Hands, Polished, ₱ doz $48.00; Nickeled, $57.00; 3 Hands, Polished, ₱ doz $72.00; Nickeled, $84.00.....25

Handles—
Iron, Wrought or Cast—
Door or Thumb.

Nos.	0	1	2	3	4
Per doz.	$0.90	1.00	1.18	1.35	1.50

60&10&10%
Roggin's Latches.....₱ doz 30@35¢
Bronze Iron Drop Latches..₱ doz 70¢ net
Jap'd Store Door Handles—Nuts, $1.62; Plate, $1.10; no Plate, $0.88.....net
Barn Door, ₱ doz $1.40.....10&10%
Chest and Lifting.....70%
Handles, Wood—
Saw and Plane.....40&10@40&10&5%
Hammer, Hatchet, Axe, Sledge, &c...40%
Brad Awl.....₱ gr $2.00
Hickory Firmer Chisel, ass'd. ₱ gr 4.50 } 50 & 10
Hickory Firmer Chisel, large. ₱ gr 5.00 } 50 & 10
Apple Firmer Chisel, ass'd...₱ gr 5.00 } 50 & 10
Apple Firmer Chisel, large...₱ gr 6.00 } 50 & 10
Socket Firmer Chisel, ass'd..₱ gr 3.00 } 50 & 10
Socket Framing Chisel, ass'd. ₱ gr 5.00 } 50 & 10
J. S. Smith & Co.'s Pat File.....50%
File, assorted.....₱ gr 2.75 } 40@
Auger, assorted.....₱ gr 5.00 } 40@
Auger, large.....₱ gr 7.00 } 40&10%
Pat. Auger, Ives'.....30&10%
Pat. Auger, Douglass'.....₱ set $1.25
Pat. Auger, Swan'.....₱ set $1.00
Hoe Rake Shovels &c.....50&10%

Cross-Cut Saw Handles—
Atkins' No. 1 Loop, ₩ pair, 28¢; No. 3, 18¢; No. 6, 16¢; No. 2 and No. 4 Reversible, 18¢.
Boynton's Loop Saw Handles, 50¢.... 60%
Champion....15¢

Hangers—
Barn Door, old patterns...60&10&10@70%
Barn Door, New England..60&10&10@70%
Samson Steel Anti-Friction....55%
Orleans Steel....55%
Hamilton Wrought Wood Track....55%
U. S. Wood Track....65%
Champion....60&10%
Rider and Wooster, Medina Mfg. Co.'s list....70%
Climax Anti-Friction....60%
limax Anti-Friction for Wood Track.55%
Zenith for Wood Track....55%
ed's Steel Arm....50%
allenge, Barn Door....50%
Sterling's Imp'ved (Anti-Friction).65&10%
Victor, No. 1, $15.00; No. 2, $16.50; No. 3, $18.00....50&2%
Cheritree....50&10%
Kidder's....50&10@60%
The Boss....60&10%
Best Anti-Friction....60&10%
Duplex (Wood Track)....60&10&5%
Terry's Pat., ₩ doz pr. 4 in, $10.00; 5 in. $12.00....50&5@50&10%
Cronk's Pat., No. 4, $12.00; No. 5, $14.40; No. 6, $18.00....50&15@60%
Wood Track Iron Clad, ₩ ft. 10¢....50 &15@60%
Carrier Steel Anti-Friction....50@50&5%
Architect, ₩ set $6.00....20%
Eclipse....20&10%
Felix, ₩ set $4.50....20%
Richards'....30@30&10%
Lane's Steel Anti-Friction....50%
Ball Bearing Door Hanger..20&10@25&10%
Warner's Pat....20@20&10%
Stearns' Anti-Friction....20@20&10%
Stearns' Challenge....25&10@25&10&10%
Faultless....40@40&5%
American, ₩ set $6.00....20&10%
Rider & Wooster, No. 1, 62½¢; No. 2, 75¢....40%
Paragon, Nos. 1, 2 and 3....40&10%
Paragon, Nos. 5, 5½, 7 and 8....20&10%
Crescent....60@60&10%
Nickel, Cast Iron....50%
Nickel, Malleable Iron and Steel....40%
Scranton Anti-Friction Single Strap.33⅓%
Scranton Anti-Friction Double Strap..40%
Universal Anti-Friction.... 40%
Wild West, 4 in. Wheel, $15.00; 5 in. Wheel, $21.00....45%
Star....40&10@40&10&5%
May....50&5@50&10%
Barry, $6.00....40&10%

Harness Snaps—
See Snaps.

Hatchets—
List Jan. 1, 1886.
Isaiah Blood....35@40%
Hunt's Shingling, Lath and Claw..40&5%
Hunt's Broad....40%
Buffalo Hammer Co....40&10@50%
Hurd's....40&10@50%
Fayette R. Plumb....40&10@50%
Wm. Mann, Jr., & Co....50@50&5%
Underhill Edge Tool Co....40&5@40&10%
Underhill's, Haines and Bright.... 33⅓%
C. Hammond & Son....40&10@50%
Simmons'....40&10@50%
Peck's....40&10@40&10&5%
Kelly's....50@50&5%
Sargent & Co....50%
Ten Eyck Edge Tool Co.40&10@40&10&5%
Collins....10%
Schulte, Lohoff & Co....50@50&5%

Hay and Straw Knives—
Lightning..Mfrs'. price ₩ doz $18.00, 25%
But jobbers frequently give extras.
Gem....₩ doz $10
Wadsworth's....40&7½@40&10%
Carter's Needle....₩ doz $11.50@$12.00
Heath's....₩ doz $13.50@14.00
Auburn Hay, Com. and Spear Point..50%
Auburn, Straw....40%
Nolin's Hay....₩ doz $10.00

Hinges—
Wrought Iron Hinges
Strap and T....75&5@75&10%
Screw Hook and Strap: 6 to 12 in., ₩ ℔ .3¾¢; 14 to 20 in., ₩ ℔.. 3½¢; 22 to 36 in., ₩ ℔....2¾¢
Heavy Welded Hook: 6 to 12 in., ₩ ℔....3¾¢; 14 to 20 in., ₩ ℔.. 3½¢; 22 to 36 in., ₩ ℔...2¾¢
Screw Hook and Eye: ½ in., ₩ doz $1.50; ⅝ in., ₩ doz $2.45; ¾ in., ₩ doz $3.80 — 10%
Rolled Blind Hinges, Nos. 32 and 34 50&10%
Rolled Blind Hinges, Nos. 232 and 234 55&10%
Rolled Plate....70&10%
Rolled Raised....70&10%
Plate Hinges "Providence": 8, 10 & 12 in., ₩ ℔....5%; over 12 in., ₩ ℔....4%
Spring Hinges—
Geer's Spring and Blank Butts....40%
Union Spring Hinge Co.'s list, March, 1886....20%
Acme....30%
U. S....25&10%
Empire and Crown....20%
Hero and Monarch....55%
American, Gem, and Star....20%
Oxford....20%
Barker's Double Acting.... 20&10%
Union Mfg. Co....25%
Bommer's....30%
Buckman's....15@20%
Chicago....30%
Wiles'....10%
Devore's....40%
Rex....40%
Royal....60%
Reliable....60%
Champion....60%
Gate Hinges—
Western....₩ doz $4.40, 60%
N. E....₩ doz $7.00, 55%
N. E. Reversible....₩ doz $5.20, 55&10%
Clark's, Nos. 1, 2, 3....60&10&5%
N. Y. State....₩ doz $5.00, 55&10%
Automatic....₩ doz $12.50, 50%
Common Sense....₩ doz pair $4.50, 50%
Seymour's....45&10%
Shepard's....60&10&5%
Reed's Latch and Hinges. ₩ doz $12.00, 50%
Blind Hinges—
Parker....75&2%
Palmer....50&5&10%
Seymour....70&2%
Nicholson....45&10%
Hi?ter....50%

Clark's, Nos. 1, 3, 5, 40 and 50 75&10&5@80%
Clark's Mortise Gravity....50%
Sargent's, Nos. 1, 3, 5, 11, 13 75&10@55&10&5%
Sargent's, No. 12....77&10&10%
Reading's Gravity....75&10@75&10&5%
Shepard's
Noiseless....75&10&5%
Niagara....80&2½%
Buffalo....80&5%
Clark's Genuine Pat....80&5%
O. S., Lull & Porter....75&10@80%
Acme, Lull & Porter....75&5%
Queen City Reversible....75%
Clark's Lull & Porter, Nos. 0, 1, 1½, 2, 2½, 3....75&10&2½%
North's Automatic Blind Fixtures, No. 2, for Wood, $10.50; No. 3, for Brick, $13.50....25&2%

Hoes—
Handled—
Garden, Mortar, &c....65%
Planter's, Cotton, &c....65%
Warren Hoe....60%
Magic....₩ doz $4.00
Eye—
D. & H. Scovil....20%
Lane's Crescent Planters Pattern..45&5%
Lane's Razor Blade, Scovil Pattern...30%
Maynard, S. & O. Pat....45&5%
Sandusky Tool Co., S. & O. Pat....60%
Hubbard & Co., S. & O. Pat....60%
Chattanooga Tool Co., S. & O. Pat....60%
Grub....60@60&10%

Hog Rings and Ringers—
Hill's Improved Ringers....₩ doz $4.25
Hill's Old Style Ringers....₩ doz $2.75
Hill's Tongs....₩ doz $4.50
Hill's Rings....₩ doz bxs $2.15@2.25
Perfect Rings....₩ doz bxs $1.60@1.70
Perfect Ringers....₩ doz $2.15@$2.25
Blair's Hog Ringers....₩ doz $2.25@2.50
Blair's Hog Rings....₩ doz 90¢@$1.00
Champion Ringers....₩ doz $2.00
Champion Rings, Double....₩ doz $2.25
Brown's Ringers....₩ doz $2.00
Brown's Rings....₩ doz $1.25@1.30

Hoisting Apparatus—
Moore's Hand Hoist, with Lock Brake....20%
Moore's Differential Pulley Block....40%
Energy Mfg. Co's....25%

Holders, File and Tool—
Balz Pat....₩ doz $4.00; 25%
Nicholson File Holders.... 20%

Hollow-Ware—
Iron—
Stove Hollow-Ware—
Ground....60@60&5%
Unground....60&10@60&10&10%
Boilers and Saucepans....40&5%
Tinned Boilers and Saucepans....40%
Gray Enameled-Ware—
Stove....45@50%
Maslin Kettles....60&10@60&10&10%
Boilers and Saucepans....40&5%
Agate and Granite Ware, list Jan. 1, 1889....33⅓&10%
Rustless Hollow-Ware....50@50&5%
Galvanized Tea-Kettles—

Inch	6	7	8	9
Each	55¢	60¢	65¢	75¢

Silver Plated—
4 mo. or 5 % cash in 30 days.
Reed & Barton; Meriden Britannia Co.; Simpson, Hall, Miller & Co.; Rogers & Brother....40&5%
Hartford Silver Plate Co; William Rogers Mfg. Co....40&5&5%

Hooks—
Cast Iron—
Bird Cage, Sargent's list; Bird Cage, Reading; Clothes Line, Sargent's list....60&10&10%
Clothes Line, Reading list. 60&10@60&10&10%
Ceiling, Sargent's list....55&10&10%
Harness, Reading list..55&10@55&10&10%
Coat and Hat, Sargent's list. 55&10@60&10%
Coat and Hat, Reading.50&10@50&10&10%
Wrought Iron—
Cotton....₩ doz $1.25
Cotton Pat. (N.Y. Mallet & Handle W'ks). 30%
Tassel and Picture (T. & S. Mfg. Co.)...50%
Wrought Staples, Hooks, &c. See Wrought Goods.
Wire—
Wire Coat and Hat, Gem, list April, 1886....50%
Wire Coat and Hat, Miles', list April, 1886....50%
Indestructible Coat and Hat....45%
Wire Coat and Hat, Standard....45%
Belt....80@80&10%
Miscellaneous.
Grass. No. 2, $2.00; No. 3, $2.25; No. 4, $2.50
Nolin's Grass....₩ doz $2.25
Bush....55@60%
Whiffletree—Patent....55%
Hooks and Eyes—Malleable Iron. 70@70&10%
Hooks and Eyes—Brass....60&10&10%
Fish Hooks, American.... 50%
Bench Hooks....See Bench Stops.

Horse Nails—
Nos. 6 7 8 9 10
Ausable....28¢ 26¢ 25¢ 24¢ 23¢. 25&10@25&10&10%
Clinton, Fin..24¢ 22¢ 21¢ 20¢ 19¢. 40&10@50%
Essex....28¢ 26¢ 25¢ 24¢ 23¢. 25&10@25&10&10%
Lyra....25¢ 23¢ 22¢ 21¢ 20¢. 40&10&5@50%
Snowden....25¢ 23¢ 22¢ 21¢ 20¢. 40&10&5@50%
Putnam....23¢ 21¢ 20¢ 19¢ 18¢. 1000 ℔ in year 15%
Vulcan....23¢ 21¢ 20¢ 19¢ 18¢..12½&5%
Northwest'n.25¢ 23¢ 22¢ 21¢ 20¢. 10&10&5&5%
Globe....23¢ 21¢ 20¢ 19¢ 18¢..20&2½%
Boston....23¢ 21¢ 20¢ 19¢ 18¢..20&2½%
A. C....25¢ 23¢ 22¢ 21¢ 20¢. 25&10@33⅓&5%
C. B.-K....25¢ 23¢ 22¢ 21¢ 20¢. 25&10@33⅓&5%
Champlain....28¢ 26¢ 25¢ 24¢ 23¢. 25&10&10%
New Haven..28¢ 26¢ 25¢ 24¢ 23¢. 25&10@25&10&10%
Saranac....23¢ 21¢ 20¢ 19¢ 18¢...30&10%
Champion....25¢ 23¢ 22¢ 21¢ 20¢. 10&10&10%
Capewell....28¢ 26¢ 25¢ 24¢ 23¢. 35&5@35&10%
Star....23¢ 21¢ 20¢ 19¢ 18¢. 10&10@10&12½%
Anchor....23¢ 21¢ 20¢ 19¢ 18¢....35%
Western....23¢ 21¢ 20¢ 19¢ 18¢...40&10%
Empire Bronzed....14 ₩ ℔.

Horse Shoes—See Shoes Horse.

Hose, Rubber—
Competition....75&10@75&10&5%
Standard....70@70&10%
Extra....60@60&10%
N. Y. B. & P. Co., Para....30&10%
N. Y. B. & P. Co., Extra....50%
N. Y. B. & P. Co., Dundee....60&10&5%

Huskers—
Blair's Adjustable....₩ gr $8.00
Blair's Adjustable Clipper....₩ gr 7.00

Indurated Fiber-Ware—25%.
Spittoons, No. 2, ₩ doz....$9.00
Basins, Ringed, ₩ doz., No. 1, $4.80; No. 2, $4.20; No. 3....$3.60
Washtubs, Nested, Nos. 0, 1, 2 and 3 (4 pieces), ₩ nest....$7.50
Keelers, Nested, Nos. 1, 2, 3 and 4 (4 pieces), ₩ nest....$3.70
Butter Bowls 15, 17 and 19-inch (3 pieces), ₩ nest....$2.25
Liquid Measures, pt., qt., 2 qt. and funnell (4 pieces) ₩ set....$4.00
Dry Measures, 1, 2, 4, 8 and 16 qts. (5 pieces), ₩ set....$3.00
See also *Pails.*

Jack Screws—See Screws.

Kettles— Spun. Stamped.
Brass, 7 to 17 in., ₩ ℔.... 24¢ 21¢
Brass larger than 17 in., ₩ ℔.... 26¢ 23½¢
Enameled and Tea Kettles. See *Hollow-Ware.*

Keys—
Lock Asso'n list Dec. 30, 1886...50&10@ 60&5%
Eagle, Cabinet, &c....33⅓&2%
Hotchkiss' Brass Blanks....40%
Hotchkiss, Copper and Tinned....40%
Hotchkiss' Pad. and Cab....35%
Ratchet Bed Keys....₩ doz $4.00, 15%
Wollensak Tinned....50&10%

Knife Sharpeners—
Parkin's.
Applewood Handles...₩ doz $6.00, 40%
Rosewood or Cocobolo. ₩ doz $9.00, 40%

Knives—
Wilson's Butcher Knives....25@30%
Ames' Butcher Knives....25%
Foster Bros.' Butcher, &c....40%
Nichols' Butcher Knives....40&10%
Ames' Shoe Knives....20@25%
Ames' Bread Knives. ₩ doz $1.50, 15@20%
Moran's Shoe and Bread....20%
Hay and Straw....See Hay Knives.
Table and Pocket....See Cutlery.
Corn, Auburn Mfg. Co. Western Pat., $2.00
Corn, Auburn Mfg. Co. Crescent....$3.50

Knobs—
Door Mineral....65@68%
Door Por. Jap'd....75@78%
Door Por. Nickel....$2.00@2.25
Door Por. Plated, Nickel....$2.00@2.25
Drawer, Porcelain....60&10@60&10&10%
Hemacite Door Knobs....40&10@50%
Yale & Towne Wood, list Dec., 1885...40%
Furniture Plain....75¢ gro inch, 10%
Furniture, Wood Screws....25&10%
Base, Rubber Tip....70&10&5%
Picture, Judd's....60&10&10@70%
Picture, Sargent's....70&10%
Picture, Hemacite....35&5%
Shutter, Porcelain....65&10%
Carriage, Jap....₩ gro 80¢, 60&10%

Ladles.—
Melting, Sargent's....55&10%
Melting, Reading....35&10%
Melting, Monroe's Pat...₩ doz $4.00, 40%
Melting, P. S. & W....35&10@40%
Melting, Warner's....30%

Lawn Mowers—
Standard List....50&10%
Quaker City....60&10%
Enterprise....60&10%

Lanterns—
Tubular—
Plain with Guards, ₩ doz....$4.00@4.25
Lift Wire, with Guards....$4.50@4.75
Square Plain, with Guards....$4.00@4.25
Sq. Lift Wire, with Guards....$4.25@4.50
Without Guards, 25¢ ₩ doz less.
Miscellaneous.
Police, Small, $6.00; Medium, $7.25; Large, $9.75....20@25%

Lemon Squeezers—
Porcelain Lined, No. 1....₩ doz $6.00, 25&30%
Wood, No. 2....₩ doz $3.00, 35%
Wood, Common....₩ doz $1.70@1.75
Dunlap's Improved....₩ doz $3.75, 20%
Sammis....No. 1, $5.00; No. 2, $9; 12, $18 ₩ doz....25&10%
Jennings' Star....₩ doz $2.50
The Boss....₩ doz $2.50
Dean's..Nos. 1, ₩ doz $6.50; 2, $3.35; 3, $1.90
Little Giant....50@50&5%
King....40&5%

Lines—
Cotton and Linen Fish, Draper's....50%
Draper's Chalk....60%
Draper's Masons' Linen, 84 ft., No. 1, $1.25; No. 2, $1.75; No. 3, $2.25; No. 4, $2.75; No. 5, $3.25....25%
Cotton Chalk....56%
Samson, Cotton, No. 4, $2; No. 4½, $2.50; 10%
Silver Lake, Braided, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50 ₩ gro....25%
Mason's Linen, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50.
Mason's Colored Cotton....45%
Wire Clothes.. Nos. 18 19 20 — $3.60 $3.00 $2.5

Ventilator Cord, Samson Braided, White or Drab Cotton..₩ doz $7.50, 20%

Locks, &c.—
Door Locks, Latches, &c.
List Dec. 30, '86, chgd Feb. 2, '87.... 50&10@60&10%
R. & E. Mfg.Co.,list Mar.20, 1889..60&10%
Mallory, Wheeler & Co., list July, '88 50&10@60@10%
Sargent & Co., list Aug. 1, '88..55&2& 10@60&10&5%
Reading Hardware Co., list Feb. 2, '88. 55@60&10%
Note.—Lower net prices often made.
Perkins' Burglar Proof....60&25%
Plate....33⅓&2%
F. Many's "Extension Cylinder" $10.50 ₩ doz.
Barnes Mfg. Co....40@40&10%
Yale....net prices
Deitz Flat Key....30%
L. & C. Round Key Latches....30&10%
L. & C. Flat Key Latches....33⅓&10%
Romer's Night Latches....15%
Shepardson or U. S....35%
Felter or American....40&10%
Seed's N. Y. Hasp Lock....25%
Cabinet—
Eagle, Gaylord Parker and Corbin....List March, '84, rev Jan. 1, '85..33⅓&2%
Deitz, Nos. 36 to 39....40%
Deitz, Nos. 51 to 63....40&10%
Deitz, Nos. 86 to 96....30%
Stoddard Lock Co....30&33⅓%
"Champion" Night Latches....40%
Barnes Mfg. Co....40@40&10%
Eagle and Corbin Trunk....25&2%
"Champion" Cab. and Combin....33⅓%
Yale....net prices
Romer's....25%
Padlocks—
List Dec. 23, '84....75@75&10%
Yale Lock Mfg. Co.'s....net prices
Eagle....25&2%
Eureka, Eagle Lock Co....40&2%
Romer's, Nos. 0 to 91....30%
Romer's Scandinavian, &c., Nos. 100 to 505..15%
A. E. Deitz....40%
Champon Padlocks....40%
Hotchkiss....30%
Star....45%
Horseshoe....₩ doz, $9. 40@40&10%
Barnes Mfg. Co....40@40&10%
Nock's....30%
Brown's Pat....25%
Scandinavian....90@90&10%
Fraim's Pat. Scandavian low list....60%
Ames Sword Co. up to No. 150....40%
Ames Sword Co. above No. 150....50%

Lumber Tools.
Ring Peavies, "Blue Line"...₩ doz $20.00
Ring Peavies, Common....₩ doz $18.00
Steel Socket Peavies....₩ doz $21.00
Mall. Iron Socket Peavies....₩ doz $19.00
Cant Hooks, "Blue Line"..₩ doz $16.00
Cant Hooks, Common Finish..₩ doz $14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish....$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish....₩ doz $14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish....₩ doz $14.00
Cant Hooks, Clip Clasp, Common Finish....₩ doz $12.00
Hand Spikes....₩ doz 6 ft., $15.00; 8 ft., $20.00
Pike Poles, Pike & Hook, ₩ doz., 12 ft., $11.50; 14 ft., $12.50; 16 ft., $14.50; 18 ft., $17.50; 20 ft., $21.50.
Pike Poles, Pike only, ₩ doz, 12 ft., $10.00; 14 ft., $11.00; 16 ft., $13.00; 18 ft., $16.00; 20 ft., $20.00.
Pike Poles, not ironed, ₩ doz, 12 ft. $6.00; 14 ft., $7.00; 16 ft., $9.00; 18 ft., $12.00; 20 ft., $16.00.
Setting Poles, ₩ doz, 12 ft., $14.00; 14 ft., $15.00; 16 ft., $17.00
Swamp Hooks....₩ doz $18.00

Lustro—
Four-ounce Bottles....₩ doz, $1.75; ₩ gross....$17.00

Mallets—
Hickory....20&10@20&10&10%
Lignumvitæ....20&10@20&10&10%
B. & L. Block Co., Hickory & L. V. 30@30&10%

Match Safes—
Dangerfield's Self-Igniting...₩ doz $1.5

Mattocks. Regular list....50&10&5@60%

Meat Cutters—
Dixon's ₩ doz....40&5%
Nos.... 1 2 3
$14.00 $17.00 $?0.00
Woodruff's ₩ doz....40&5%
Nos.... 100 150
$15.00 $18.00
Champion ₩ doz....40&45%
Nos.... 200 300 400
$22.00 $27.00 $40.00
Hales Pattern ₩ doz.... 70@70&5%
Nos.... 11 12 13
$27.00 $33.00 $45.00
American....30%
Nos.... 1 2 3 4 B 5
Each.... $5 $7 $10 $25 $50 $60
Enterprise....30%
Nos.... 10 12 22 32 42
Each.... $3 $2.50 $4 $6 $15
Pennsylvania....40&10%
Nos.... 1 2 3 00
₩ doz.... $24.00 $28.00 $36.00 $28.00
Miles' Challenge ₩ doz....45@45&10%
Nos.... 1 2 3
$22.00 $30.00 $40.00
Home No. 1....₩ doz, $26.00, 55&10%
Draw Cut, each:
Nos..5 2 6 8
$50 $75 $80 $225....20@25%
Beef Shavers (Enterprise)....20&10@30%
Chadborn's Smoked Beef Cutter. ₩ doz $66.00

Mincing Knives—
Am. (2d quality), ₩ gr., 1 blade, $7; 2 blades, $12; 3 blades, $18....net
Lothrop's....20&10%
Smith's, ₩ doz, Single, $2.00; Double, $3 40@45%
Knapp & Cowles....50&10@60%
Buffalo Adjustable....₩ doz. $3.00, 25%

Molasses Gates—
Stebbin's Pat.... 70@70&7½%
Stebbin's Genuine.... 60&10&10%
Stebbin's Tinned Ends.... 40&10%
Chase's Hard Metal.... 50&10%
Bush's.... 20%
Lincoln's Pattern.... 70@70&10
Weed's.... 20&10%

Boss, ₱ doz:
Nos. 1, $7; No. 2, $8; No. 3, $9; No. 4 $10.... 60&10&10%

Money Drawers....₱ doz, $18@$20

Muzzles—
Safety.... ₱ doz, $3.00, 25 %

Nails, see Trade Report.

Wire Nails, Papered.
Association list, July 15, 1889.... 70&10&10@70&10&10&5%
Tack Mfrs.' list.... 70@70&5%
Wire Nails, Standard Penny.
Card June 1, '89, base.... $2.40@$2.50

Nail Puller—
Curtiss Hammer.... ₱ doz $9.00
Giant, No. 1.... ₱ doz. $30.00, 10%
Pelican.... ₱ doz, $9.00, 25%
Boss.... ₱ doz, $30.00, 30%
Lightning.... ₱ doz $21.00

Nail Sets—
Square.... ₱ gr., $4.00@$4.25
Round.... ₱ gr. $3.25
Cannon's Diamond Point...₱ gr., $12, 20%

Nut Crackers—
Table (H. & B. Mfg. Co.).... 40%
Blake's Pattern.... ₱ doz $2.00, 10%
Turner & Seymour Mfg. Co.... 50%

Nuts—
Nuts, off list Jan. 1, 1888: Square. Hex.
Hot Pressed.... 5.4¢ 5.9¢
Cold Punched.... 5.4¢ 5.5¢
In lots less than 100 ℔, ₱ ℔, add ½¢; 1-℔ boxes, add 1¢ to list.

Oakum—
Government.... ₱ ℔ 7¾ @8 ¢
U. S. Navy.... ₱ ℔ 6¾ @ 7¢
Navy.... ₱ ℔ 5¾¢@6¼¢

Oilers—
Zinc and Tin.... 65@65&10%
Brass and Copper.... 50&10@50&10&5%
Malleable, Hammers' Improved, No. 1, $3.60; No. 2, $4.00; No. 3, $4.40 ₱ doz. 10@10&10%
Malleable, Hammers, Old Pattern, same list.... 40%
Prior's Pat. or "Paragon" Zinc.... 60&10&10%
Prior's Pat. or "Paragon" Brass.... 50%
Olmstead's Tin and Zinc.... 60%
Olmstead's Brass and Copper.... 50%
Broughton's Zinc.... 60%
Broughton's Brass.... 50%
Gem P. D. & Co.... ₱ gro. $2

Packing, Steam—
Rubber—
Standard.... 60&10@60&10&10%
Extra.... 50&10@60%
N. Y. B. & P. Co., Standard...50&10&5%
N. Y. B. & P. Co., Empire.... 70%
N. Y. B. & P. Co., Salamander. ₱ ℔ 65¢, 30%
Jenkins' Standard.... ₱ ℔ 80¢, 35%

Miscellaneous—
American Packing....10¢@11¢ ₱ ℔
Russia Packing....14¢ ₱ ℔
Italian Packing....13¢@14¢ ₱ ℔
Cotton Packing....15¢@17¢ ₱ ℔
Jute....7¢@8¢ ₱ ℔

Padlocks—
See Locks.

Pails—
Galvanized Iron—

Quarts	10	12	14
Hill's Light Weight, ₱ doz.	$2.75	3.00	3.25
Hill's Heavy Weight, ₱ dz.	3.00	3.25	3.75
Whiting's	2.75	3.00	3.25
Sidney Shephard & Co.	2.80	3.00	3.40
Iron Clad	2.75	3.00	3.25
Fire Buckets	2.75	3.25	3.50

Buckets, see Well Buckets.

Indurated Fibre Ware—25%
Star Pails, 12 qt.... ₱ doz $6.00
Fire, Stable and Milk, 14 qt..₱ doz $7.80

Standard Fibre Ware—

	Plain.	Decr'd
Water Pails, 12 qt., per doz.	$4.00	$4.50
Dairy Pails, 14 qt., per doz.	4.50	5.00
Fire Pails, No. 1, 12 qt. per doz	5.00	
Fire Pails, No. 2, 14 qt. per doz	4.50	

Pencils—
Faber's Carpenters'.... high list 50%
Faber's Round Gilt.... ₱ gro $5.25
Dixon's Lead.... ₱ gro $4.50
Dixon's Lumber.... ₱ gro $6.75
Dixon's Carpenters'.... 40&10%

Picks—
Railroad or Adze Eye, 5 to 6, $12.00; 6 to 7, $13.00.... 50&10&5 @ 60%

Picture Nails—
Brass Head, Sargent's list.... 50&10&10%
Brass Head, Combination list.... 50&10%
Porcelain Head, Sargent's list. 50&10&10%
Porcelain Head, Combination list. 40&10%
Niles' Patent.... 40%

Pinking Irons— ₱ doz 65¢ net

Pipe, Wrought Iron—
List March 23, 1887.
1¼ and under, Plain.... 50%
1¼ and under, Galvanized.... 42½%
1½ and over, Plain.... 62½%
1½ and over, Galvanized.... 50%
Boiler Tubes, Iron.
1¾ and under.... 52½%
2 in. and larger.... 57½%

Planes and Plane Irons—
Wood Planes—
Molding.... 50&5@50&10%
Bench, First Quality.... 60@60&5%
Bench, Second Quality. 60&10@60&10&10%
Bailey's (Stanley R. & L. Co.).... 40&10%
Iron Planes—
Bailey's (Stanley R. & L. Co.).... 40@10%
Miscellaneous Planes (Stanley R. & L. Co.).... 20&10%
Victor Planes (Stanley R. & L. Co.). 20&10%
Steer's Iron Planes.... 35@35&5%
Meriden Mal. Iron Co.'s. 30&10@30&10&10%
Davis's Iron Planes...30&10@30&10&10%
Birmingham Plane Co.... 50@50&5%
Gage Tool Co.'s Self-Setting.... 20&10%
Chaplin's Iron Planes.... 40@40&5%
Sargent's.... 30&10@30&10&10%
Plane Irons—
Plane Irons.... 20&10%
Plane Irons, Butcher's...$5.00@$5.25 to £
Plane Irons, Buck Bros.... 30%
Plane Irons, Auburn Tool Co., "Thistle".... 40%
Sandusky Tool Co.:
Single and Cut.... 30%
Double.... 40%
L. & I. J. White.... 25%

Pliers and Nippers—
Button's Patent.... 30&10@40%
Hall's No. 2, 5 in., $13.50; No. 4, 7 in. $21.00 ₱ doz.... 20&10@33⅓%
Humason & Beckley Mfg. Co..50@50&10%
Gas Pliers.... 60%
Gas Pliers, Custar's Nickel Plated..60&5%
Eureka Pliers and Nippers.... 40%
Russell's Parallel.... 25%
P. S. & W. Cast Steel.... 50%
P. S. & W. Tinners' Cutting Nippers, add 6% dis 10%
Carew's Pat. Wire Cutters.... 20%
Morrill's Parallel, ₱ doz, $12.00....30&5%
Cronk's 8 in., $15.00; 10 in. $21.00, 40@40&5%

Plumbs and Levels—
Regular List....70&10@70&10&10%
Disston's.... 45&10%
Pocket Levels....70&10@70&10&10%
Davis Iron Levels.... 30%
Davis' Inclinometers.... 10&10%

Polish, Metal.
Prestoline.... 20&10%
Krestoline Paste.... 33⅓%
Gaston's Silver Compound.... 33⅓%

Pokes, Animal—
Bishop's I. X. L.... ₱ doz $6.50
Bishop's O. K.... ₱ doz $5.50
Bishop's Pioneer.... ₱ doz $3.75
Bishop's American.... ₱ doz $3.00

Poppers, Corn—
Round or Square, 1 qt..₱ gr $12.00@15.00
Round or Square, 2 qt..₱ gr $25.00@26.00

Post Hole and Tree Augers and Diggers—
Samson Post Hole Digger, ₱ doz $36.00. 25&10%
Fletcher Post Hole Augers, ₱ doz $36, 20%
Eureka Diggers.... ₱ doz $16.00@17.00
Leed's.... ₱ doz $8.00@9.00
Vaughan's Post Hole Auger, ₱ doz $13.00@14.00
Kohler's Little Giant.... ₱ doz $18.00
Kohler's Hercules.... ₱ doz $15.00
Kohler's New Champion.... ₱ doz $9.00
Schneidler.... ₱ doz $18.00
Ryan's Post Hole Diggers...₱ doz $24.00
Cronk's Post Bars, ₱ doz $60.00, 50&5@50&10%
Gibbs Post Hole Digger, ₱ doz $30.00, 50%
Imperial, ₱ doz, $15.... 45%

Potato Parers—
White Mountain.... ₱ doz $5.00@5.50
Antrim Combination.... ₱ doz $8.00
Hoosier.... ₱ doz $13.50

Pruning Hooks and Shears—
Disston's Combined Pruning Hook and Saw.... ₱ doz $18.00, 20&10%
Disston's Pruning Hook, ₱ doz $12.00, 20&10%
E. S. Lee & Co.'s Pruning Tools.... 40%
Pruning Shears, Henry's Pat, ₱ doz $3.75@4.00 net
Henry's Pruning Shears, ₱ doz $4.25@4.50 net
Wheeler, M. & C. Co.'s Combination, ₱ doz $12.00, 20%
Dunlap's Saw and Chisel, ₱ doz $8.50, 30%
J. Mallinson & Co., No. 1, $5.25; No. 2, 7.25

Pulleys—
Hot House, Awning, &c.... 60&10%
Japanned Screw.... 60&10%
Brass Screw.... 60&10%
Japanned Side.... 66⅔&10%
Japanned Clothes Line.... 60&10%
Empire Sash Pulley.... 55@60%
Moore's Sash, Anti-Friction.... 50%
Hay Fork, Solid Eye, $4.00; Swivel, $4.50.... 50&10@50&10&5%
Hay Fork, "Anti-Friction," 5 in. Solid, $5.70.... 50%
Hay Fork, "F" Common and Pat. Bushed.... 20%
Hay Fork, Tarbox Pat. Iron.... 20%
Hay Fork, Reed's Self-Lubricating...60%
Shade Rack.... 45%
Tackle Blocks.... See Blocks
Moore's Anti-Friction 5 in. Wheel, ₱ doz $12.00.... 40%

Pumps—
Cistern, Best Makers.... 50&10@60%
Pitcher Spout, Best Makers...60&10@60 &10&10%
Pitcher Spout, Cheaper Goods...70&5@ 70&10&5%

Punches—
Saddlers' or Drive, good, ₱ doz...60@65¢
Bemis & Call Co.'s Cast Steel Drive..50&5%
Bemis & Call Co's Springfield Socket. 50&5%
Spring, good quality....₱ doz $2.50@2.60
Spring, Leach's Pat.... 15%
Bemis & Call Co.'s Spring and Check..40%
Solid Tinners'.... ₱ doz $1.44, 55%
Tinners' Hollow Punches.... 20&2%
Rice Hand Punches.... 15%
Avery's Revolving.... 40%
Avery's Saw Set and Punch. See Saw Sets.

Rail—
Sliding Door. Wr't Brass, ₱ ℔ 35¢.... 15%
Sliding Door, Bronzed Wr't Iron..₱ ft. 7¢
Sliding Door, Iron, Painted, ₱ foot 4¢, 40%
Barn Door, Light. In. ½ ¾ 1
Per 100 feet.... $2.00 2.50 3.10, 10%
B. D. for N. E. Hangers— Small. Med. Large.
Per 100 feet...$2.15 2.70 3.25..net
Terry's Wrought Iron, ₱ foot.... 4¾@5¢
Victor Track Rail, 7¢ ₱ foot.... 50&2%
Carrier Steel Rail, ₱ foot.... 4½¢
Moore's Wrought Iron.... 25%

Rakes—
Cast Steel, Association goods.... 65%
Cast Steel, outside goods.... 60&10@70%
Malleable.... 70@70&5%
Gibbs Lawn Rake....$12.00, 50&15%
Canton Lawn Rake.... $9.00, 50&10%
Ft. Madison Prize Bow Brace and Peerless.... 65%
Fort Madison Steel Tooth Lawn Rake, $6.00.... 25%

Razors—
J. R. Torrey Razor Co.... 20%
Wostenholme and Butcher, $10.00 to £, 10%

Razor Strops—
Genuine Emerson.... 60@60&5%
Imitation " ....₱ doz $2.00, 20&10&5%
Torrey's.... 20%
Badger's Belt and Com.... ₱ doz $2.00
Lamont Combination.... ₱ doz $4.00

Rivets and Burrs—
Iron, list Nov. 17, '87.... 50%
Copper.... 50&10@60%

Rivet Sets.... 50&10%

Rods—
Stair, Brass.... 25&2%
Stair, Black Walnut.... ₱ doz 40¢

Rollers—
Barn Door, Sargent's list.... 60&10&10%
Acme Moore's Anti-Friction.... 55%
Union Barn Door Roller.... 70%

Rope—
Manufacturers' prices for large lots:
Manila...¼ in. and larger ₱ ℔ 13¾¢
Manila....⅜ in. ₱ ℔ 14¼¢
Manila....½ and 5-16 in. ₱ ℔ 14½¢
Manila Tarred Rope.... ₱ ℔ 13¼¢
Manila, Hay Rope.... ₱ ℔ 13¾¢
Sisal...½ inch and larger ₱ ℔ 11¾¢
Sisal....⅜ in. ₱ ℔ 12¼¢
Sisal....¼ and 5-16 in. ₱ ℔ 13¾¢
Sisal, Hay Rope.... ₱ ℔ 11¾¢
Sisal, Tarred Rope.... ₱ ℔ 11¼¢
Sisal, Medium Lathe Yarn. ₱ ℔ 10¾¢
Cotton Rope.... ₱ ℔ 15@18¢ net
Jute Rope.... ₱ ℔ 8¢
(1½% ₱ ℔ cash in 10 days.)

Rules—
Boxwood.... .80&10&10@80&10&10&5%
Ivory.... 50@50&10%
Starrett's Rules and Straight Edges, Steel.... 25&10%

Sad Irons—
From 4 to 10, at factory...₱ 100 ℔, $2.40@$2.55
Self-Heating.... ₱ doz $9.00 net
Self-Heating, Tailors'.... ₱ doz $18.00 net
Gleason's Shield and Toilet.... 25%
Mrs. Pott's Irons.... 40@40&10%
Enterprise Star Irons.... 40%
Combined Fluter and Sad Iron, ₱ doz, $15.00.... 15%
Fox Reversible, Self-Fluter ₱ doz $24.00
Chinese Laundry (N.E. Butt Co.) 8½¢, 15%
New England.... 5¢, 15%
Mahony's Troy Fol. Irons.... 25%
Sensible.... 20@20&5%
National Self-Heating.... 30%

Sand and Emery Paper and Cloth—
List April 19, 1886.... 50@50&10%
Sibley's Emery and Crocus Cloth.... 30%

Sash Cord—
Common.... ₱ ℔, 10@11¢
Patent, good quality.... ₱ ℔ 13@13½¢
White Cotton Braided, fair..₱ ℔ 28@29¢
Common Russia Sash.... ₱ ℔ 13½¢
Patent " " ₱ ℔ 15¢
Cable Laid Italian Sash.... ₱ ℔ 22¢@23¢
India Cable Laid " ₱ ℔ 13¢
Silver Lake—
A Quality, White, 50¢.... 10&10&5%
A Quality, Drab, 55¢.... 10&10&5%
B Quality, White, 50¢.... 20&10&5%
B Quality, Drab, 55¢.... 20&10&5%
C Quality, White (only).... 26½¢@28¢
Sylvan Spring, Extra Braided, White, 34¢
Sylvan Spring, Extra Braided, Drab..39¢
Semper Idem, Braided, White.... 30¢
Egyptian, India Hemp, Braided.... 25¢
Samson—
Braided, White Cotton, 50¢..30@30&5%
Braided, Drab Cotton, 55¢....30@30&5%
Braided, Italian Hemp, 55¢..30@30&5%
Braided, Linen, 80¢.... 30@30&5%

Sash Locks—
Clark's, No. 1, $10; No. 2, $8 ₱ gr..33⅓%
Ferguson's.... 33⅓%
Morris and Triumph, list Aug. 16, 1886, 60&2%
Victor.... 60&10&2%
Walker's.... 10%
Attwell Mfg. Co.... 25&33⅓%
Reading.... 66⅔&10@66⅔&10&10%
Hammond's Window Springs.... 40%
Common Sense, Jap'd, Cop'd and Br'zed.... ₱ gr $4.00
Common Sense, Nickel Plated ₱ gr $10.00
Universal.... 30%
Kempshall's Gravity.... 60%
Kempshall's Model.... 60@60&10%
Corbin's Daisy, list Feb. 15, 1886....70%
Payson's Perfect.... 60@60&10%
Hugunin's Sash Balances.... 25&5&2%
Hugunin's New Sash Locks.... 25&5&2%
Stoddard "Practical".... 10%
Ives' Patent.... 60@60&10%
Liesche's, Nos. 100 and 110, ₱ gr $8; 105, $10.00.... 20&10%
Davis, Bronze, Barnes Mfg. Co.... 50%
Champion Safety, list March 1, 1888 55@55&5%
Security.... 70%
Buckeye.... ₱ gro $4.80

Sash Weights—
Solid Eyes.... ₱ ton $22.00

Sausage Stuffers or Fillers—
Milas' "Challenge," ₱ doz $20, 50@50&5%
Perry.... ₱ doz, No. 1, $15.00; No. 0, $21.00.... 50@50&5%
Draw Cut No. 4, each $30.00.... 20%
Enterprise Mfg. Co.... 20&10@30%
Silver's.... 40&10%

Saws—
Disston's Circular....45@45&5%
Disston's Cross Cuts....45@45&5%
Disston's Hand 25@25&5%
(Extras sometimes given by jobbers.)
Atkins' Circular Shingle and Heading 50&10%
Atkins' Silver Steel Diamond X Cuts ₱ foot 70¢
Atkins' Special Steel Dexter X Cuts ₱ foot 50¢
Atkins' Special Steel Diamond X Cuts ₱ foot 30¢
Atkins' Champion and Electric Tooth X Cuts.... ₱ foot 24@25¢
Atkins' Hollow Back X Cuts..₱ foot 18¢
Atkins' Mulay, Mill and Drag....40&10%
Atkins' One-Man Saw, with handles, ₱ foot 32¢
W. M. & C., Hand....30&5@30&10%
W. M. & C., Champion X Cuts, Regular.... ₱ foot 24@26¢
W. M. & C. X Cuts, Thin Back.... ₱ foot 27¢@29¢
Peace Circular and Mill.... 45&10%
Peace Hand Panel and Rip 20&10@20&10&10%
Peace Cross Cuts, Standard...₱ foot 25¢
Peace Cross Cuts, Thin Back ₱ foot 27@28¢
Richardson's Circular and Mill 45@45&10%
Richardson's X Cuts, No. 1, 39¢; No. 2, 27¢; No. 3, 24¢
Hack Saws—
Griffin's, complete.... 40&10@50%
Griffin's Hack Saw, Blades....40&10@50%
Star Hack Saws and Blades.... 25%
Diamond Hack Saws and Blades.... 25%
Eureka and Crescent.... 25%

Saw Frames—
White Vermont.... ₱ gro $9.00@10.00
Red, Polished and Varnished.... ₱ doz $1.50, 25%

Saw Sets—
Stillman's Genuine...₱ doz $5.00@7.75, 40&5%
Stillman's Imita....₱ doz $3.25@5.25, 40&5@40&10%
Common Lever.... ₱ doz $2.00, 40&5%
Morrill's No. 1, $15.00; Nos. 3&4, $24.00. 40&10@50%
Leach's...No. 0, $8.00; No. 1, $15, 15@20%
Nash's.... 20&10@20&10&10%
Hammer, Hotchkiss.... $5.50, 10%
Hammer, Bemis & Call Co.'s new Pat. 30&5%
Bemis & Call Co.'s Lever and Spring Hammer.... 30&5%
Bemis & Call Co.'s Plate.... 10%
Bemis & Call Co.'s Cross Cut.... 12½%
Aiken's Genuine....$13.00, 50&10%
Aiken's Imitation.... $7.00, 55&5%
Hart's Pat. Lever.... 20%
Disston's Star, $9, No. 15, $5.50; 20& 10@20&10&10%
Atkin's Lever, ₱ doz No. 1, $6.00; No. 2, $9.60
Atkin's Criterion.... ₱ doz $7.50
Croissant (Keller), No. 1, $15.00; No. 2, $24.00.... 40&10%
Avery's Saw Set and Punch.... 50%
Am. Tool Co.'s Superior.... ₱ doz $15, 50%

Saw Tools—
Atkins' Perfection.... ₱ doz $15.00
Atkins' Excelsior.... ₱ doz $6.00
Atkins' Giant.... ₱ doz $4.00

Scales
Hatch, Counter, No. 171, good quality, ₱ doz $21.00
Hatch, Tea, No. 161....₱ doz $6.75@$7.00
Union Platform, Plain.... $2.10@2.20
Union Platform, Striped.... $2.20@2.30
Chatillon's Grocers' Trip Scales.... 50%
Chatillon's Eureka.... 25%
Chatillon's Favorite.... 40%
Family, Turnbulls.... 30@30&10%
Riehle Bros.' Platform.... 40%

Scale Beams—
Scale Beams, List Jan. 12, '82...50&10@ 50&10&5%
Chatillon's No. 1.... 40%
Chatillon's No. 2.... 50%

Scrapers—
Adjustable Box Scraper (S. R. & L. Co.) $6.50.... 30&10%
Box, 1 Handle.... ₱ doz $4.00, 10%
Box, 2 Handle.... ₱ doz $6.00, 10%
Defiance Box and Ship.... 20&10%
Foot.... 50&10@60%
Ship, Common.... ₱ doz $3.50 net
Ship, R. I. Tool Co.... 10%

Screen Window and Door Frames—
Porter's Pat. Window and Door Frame. 33⅓&10%
Warner's Screen Corner Irons....33⅓@ 33⅓&10%
Stearns' Frames and Corners. 25@25&10%

Screw Drivers—
Douglas Mfg. Co.... 20&10&10%
Disston's.... 45&10%
Disston's Pat. Excelsior.... 45&10%
Buck Bros.... 30%
Stanley R. & L. Co.'s Varnished Handles.... 65&10%
Black Handles.... 60&10%
Sargent & Co.'s
No. 1 Forged Blade.... 60&10&10%
Nos. 20, 30 and 60.... 66⅔&10&10%
Knapp & Cowles' No. 1.... 60&20@70%
No. 1 Extra.... 60@60&10%
Nos. 00 & 4.... 50&5@50&10&5%
Stearns'.... 25&10&5%
Gay & Parsons.... 35%
Champion.... 25&10%
Clark's Pat.... 30@33⅓%
Crawford's Adjustable.... 30%
Ellrich's Socket and Ratchet..25@25&10%
Allard's Spiral, new list.... 25%
Kolb's Common Sense ₱ doz $6.00, 25&10%
Syracuse Screw-Driver Bits....30&30&5%
Screw Driver Bits.... ₱ doz 50@75¢
Screw-Driver Bits, Parr's.... ₱ gro $6.25
Fray's Hol. Hdle. Sets. No. 3, $12.00, 25@25&10%
P. D. & Co.'s all Steel.... 50%

Screws—
Wood Screws—List March 1, 1889
Flat Head Iron....50%
Round Head Iron....40%
Flat Head Brass....45%
Round Head Brass....35%
Flat Head Bronze....45%
Round Head Bronze.35%
(Extra 5 @ 10% often given)

Machine—
Flat Head, Iron.....55%
Round Head, Iron.....50%

Bench and Hand—
Bench, Iron.....55&10@55&10&10%
Bench, Wood, Beech.....℔ doz $2.25
Bench, Wood, Hickory.....20&10%
Hand, Wood.....25&10@25&10&5%
Lag, Blunt Point, according to size.....80@80&5%
Coach and Lag, Gimlet Point.....75%
Bed.....25&5%
Hand Rail, Sargent's.....66⅔&10%
Hand Rail, H. & B. Mfg. Co...70&10@75%
Hand Rail, Am. Screw Co.....75%
Jack Screws, Millers Falls list..50@50&5%
Jack Screws, P. S. & W.....35%
Jack Screws, Sargent...60&10@60&10&5%
Jack Screws Stearns'.....40@40&10%

Scroll Saws—
Lester, complete, $10.00.....25%
Rogers, complete, $4.00.....25%
Barnes' Builders' and Cabinet Makers', $15.....25%
Barnes' Scroll Saw Blades.....35%

Scythe Snaths.....50&2%

Shears—
American (Cast) Iron...75&10@75&10&5%
Pruning...See Pruning Hooks and Shears.
Barnard's Lamp Trimmers...℔ doz $3.75
Tinners'.....20&2%
Seymour's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's, List, Dec., 1881. 60&10&10@60&10&10&5%
Heinisch's Tailor's Shears.....33⅓%
First quality C. S. Trimmers..80@80&10%
Second quality C. S. Trimmers. 80&10@80&10&10%
Acme Cast Shears.....10&10%
Diamond Cast Shears.....10%
Clipper.....10&10%
Victor Cast Shears.....75&10@75&10&5%
Howe Bros. & Hulbert, Solid Forged Steel.....40%
Chicago Drop Forge & F. Co., Solid Steel Forged.....60%
Clauss Shear Co., Japanned.....70%
Clauss Shear Co., Nickeled, same list.60%

Sheaves—
Sliding Door—
M. W. Co., list July, 1888..50&10@60&5%
R. & E., list Dec. 18, 1885.....55&20%
Corbin's list.....60&10&2%
Patent Roller.....60&10&2%
Patent Roller, Hatfield's.....75%
Russell's Anti-Friction, list Dec. 18, 1885.....60&2%
Moore's Anti-Friction.....50%

Sliding Shutter—
R. & E. list Dec. 18, 1885.....60&10&2%
Sargent's list.....60&10%
Reading list.....60&10&10%

Ship Tools—
L. & I. J. White.....20&5%
Albertson Mfg. Co.....25%

Shoes, Horse, Mule, &c.—
Horse—
Burden's, Perkins', Phœnix, at factory. $4.00

Mule—
Add $1 ℔ keg to above prices.

Ox, Wrought—
Ton lots.....℔ ⅌ 9¢
1000 ⅌ lots.....℔ ⅌ 9½¢
500 ⅌ lots.....℔ ⅌ 10¢

Shot—
(*Eastern prices 2¢ off, cash, 5 days.*
Drop, ℔ bag, 25 ⅌.....$1.25
Drop, ℔ bag, 5 ⅌.....30
Buck and Chilled, ℔ 25-⅌ bag.....1.50
Buck and Chilled, ℔ 5-⅌ bag.....35

Shovels and Spades—
Ames' Shovels, Spades, &c., list Nov. 1, 1885.....20%
NOTE.—Jobbers frequently give 5@7½% extra on above.
Griffith's Black Iron.....50&10%
Griffith's C. S.....60@60&10%
Griffith's Solid C. S. R. R. Goods.....30%
Old Colony (Sanford Fork & Tool Co).20%
St. Louis Shovel Co.....20@20&7½%
Hussey, Binns & Co.....15@25%
Hubbard & Co.....20@20&7½%
Lehigh Mfg. Co.....50&10%
Payne Pettebone & Son, list January, 1886.....30%
Remington's (Lowman's Pat.)30&10@40%
Rowland's, Black Iron.....50&10%
Rowland's Steel.....60&5@60&10%

Shovels and Tongs—
Iron Head.....60&10@60&10&5%
Brass Head.....60&10&10%

Skeins, Thimble—
Western list.....75&5@75&10%
Columbus Wrt. Steel, list Nov. 1, 1887.20%
Coldbrookdale Iron Co.....50&10%
Utica P. S. T. Skeins.....60%
Utica Turned and Fitted.....35%

Sieves—
Buffalo Metallic, S. S. & Co...50&25&10%
Shaker (Barler's Pat.) Flour Sifters... ℔ doz $2.00; ℔ gr $21.00
Electric.....℔ gr $18.00
Hunter's.....℔ gr $21.00
Smith's Adjustable Sifters....℔ doz $2.00
Smith's Adjustable Milk Strainer. ℔ doz $2.00
Smith's Adjustable T. & C. Strainer. ℔ doz. $1.25

Sieves, Wooden Rim—

	Iron.	Plated.
Mesh 18, Nested, ℔ doz..	70¢	90¢
Mesh 20, Nested, ℔ doz..	85¢	$1.00
Mesh 24, Nested, ℔ doz..	$1.00	1.10

Slates—
School, by case.....40%

Snaps, Harness, &c.—
Anchor (T. & S. Mfg. Co.).....65%
Fitch's (Bristol).....50&10%
Hotchkiss.....10%
Andrews.....50%
Sargent's Patent Guarded.....70&10&10%
German, new list.....40&10%
Covert.....50&2%
Covert, New Patent.....50&5&2%
Covert, New R. E.....60&10&3%
Covered Spring.....60&10&10%

Soldering Irons—
Covert's Adjustable, list Jan. 1, 1886. 35&2%

Spoke Shaves—
Iron.....45%
Wood.....30%
Bailey's (Stanley R. & L. Co.).....40&10%
Stearns'.....20&10@30%

Spoke Trimmers—
Bonney's.....℔ doz $10.00, 50%
Stearns'.....20&10%
Ives', No. 1, $15.00; No. 2, $12.00 ℔ doz. 55&10%
Douglas'.....℔ doz $9.00, 20%

Spoons and Forks—
Tinned Iron—
Basting, Cen. Stamp. Co.'s list...70&10%
Solid Table and Tea, Cen. Stamp. Co.'s list.....70&10%
Buffalo S. S. & Co.....33⅓&2%
Silver-Plated—(4 mos. or 5% cash 30 days).
Meriden Brit. Co., Rogers.....50%
C. Rogers & Bros.....50%
Rogers & Bro.....50%
Reed & Barton.....50%
Wm. Rogers Mfg. Co.....50&10@60%
Simpson, Hall, Miller & Co.....50&10
Holmes & Edwards Silver Co...60@60&5%
L. Boardman & Son.....50&10%
Miscellaneous.
Holmes & Edwards Silver Co.:
No. 67 Mexican Silver.....50&10&5%
No. 30 Silver Metal.....50&10&5%
No. 24 German Silver.....50&10&5%
No. 50 Nickel Silver.....50%
No. 49 Nickel Silver.....50&10
German Silver.....50@50&5
German Silver, Hall & Elton..50&5% cash
Nickel Silver.....50&5@50&10&5% cash
Britannia.....60%
Boardman's Nickel Silver.....50 } 4 mos.
Boardman's Britannia Spoons, case lots.....60 } 4 mos.

Springs—
Elliptic, Concord, Platform and Half Scroll.....60@60&5%
Cliff's Bolster Springs.....25%

Squares—
Steel and Iron..... } 75&10@80%,
Nickel-Plated..... } full cs. ex. 10%
Try Square and T Bevels...60&10@60&10 &10%
Disston's Try Square and T Bevels.45&10%
Winterbottom's Try and Miter...30&10%
Starrett's Micrometer Caliper Squares. 25%
Avery's Flush Bevel Squares.....40%
Avery's Bevel Protractor.....50%

Standard Fibre Ware—

	Per Dozen. Plain.	Dec'r'd
Wash-Basins, 10½ in.....	$2.00	$2.25
Wash-Basins, 12 in.....	2.25	2.75
Keelers, 11¼ in.....		4.00
Cuspidors.....		8.00
Spittoons, "Daisy," 8 in....	4.00	4.50
Peck Measure.....	4.00	
Half-peck Measure.....	3.50	

See also Pails.

Staples—
Fence Staples, Galvanized. } Same price
Fence Staples, Plain..... } as B'rbWire. See Trd.Rep.

Steelyards.....40&10@50%

Stocks and Dies—
Blacksmith's
Waterford Goods.....30&5@30&10%
Butterfield's Goods.....30&5@30&10%
Lightning Screw Plate.....25@30%
Reece's New Screw Plates...33⅓&5@40%
Reversible Ratchet.....30%

Stone—
Hindostan No. 1, 3¢; Axe, 3¾¢; Slips No. 1, 4½¢
Sand Stone.....℔ ⅌ 2¼¢
Washita Stone, Extra.....℔ ⅌ 19@20¢
Washita Stone, No. 1.....℔ ⅌ 14@15¢
Washita Stone, No. 2.....℔ ⅌ 10@11¢
Washita Slips, No. 1, Extra..℔ ⅌ 36@38¢
Washita Slips, No. 1.....℔ ⅌ 24@25¢
Arkansas Stone, No. 1, 4 to 6 in ℔ ⅌ $1.50
Arkansas Stone, No. 1, 6 to 9 in ℔ ⅌ $1.85
Turkey Oil Stone, 4 to 8 in.....℔ ⅌ 40¢
Turkey Slips.....℔ ⅌ $1.00@1.50
Lake Superior, Chase.....℔ ⅌ 16¢
Lake Superior Slips, Chase...℔ ⅌ 31@32¢
Seneca Stone, Red Paper Brand....℔ ⅌ 18@20¢
Seneca Stone, High Rounds..℔ ⅌ 20@25¢
Seneca Stone, Small Whets..℔ gro $24.00

Stove Polish—
Joseph Dixon's.....℔ gro $6.00,¼%
Gem.....℔ gro $4.50, 10%
Gold Medal.....℔ gro $6.00, 25%
Mirror.....℔ pro $6.00, —%
Lustro.....℔ gro $4.75
Ruby.....℔ gro $3.75
Rising Sun, 5 gro lots.....℔ gro $5.50
Dixon's Plumbago.....℔ ⅌ $5.00
Boynton's Noon Day, ℔ gro.....13.00
Parlor Pride Stove Enamel..℔ gro $ cans
Yates' Liquid, 2 3 5 10 gal....8¢
℔ gal ...$0.90 .80 .70 .60
Yates Standard Paste Polish, 10-⅌ cans, ℔ ⅌ 15¢
Jet Black.....℔ gro $3.50
Japanese.....℔ gro $3.50
Fireside.....℔ gro $2.50
Diamond O. K. Enamel.....℔ gro $19.00
Bonnell's Liquid Stove Polish.℔ gro $9.00
Bonnell's Paste Stove Polish..℔ gro $6.00
Black Eagle Benzine Paste, 5 and 10 ⅌ cans.....12½¢
Black Jack Water Paste, 5 and 10 ⅌ cans.....12½¢
Nickel Plate Paste.....℔ gro $6.00

Tacks, Brads, &c.—
List, Jan. 2, 1888.—[*Note.*—Some manufacturers are selling Tacks at slightly higher prices than those named]:
American Iron Carpet.....80@80&5%
Steel Carpet.....80@80&5%
Swedes Iron Carpet.....80@80&5%
American Iron Cut.....75@75&10%
Swedes Iron.....75&5@75&10%
Swedes Iron, Upholsterers', 75&10@80%
Tinned Swedes Iron.....75&10@80%
Tinned Swedes Iron, Upholsterers', 75&10@80%
Gimp and Lace.....75&10@80%
Tinned Gimp and Lace.....75&10@80%
Swedes Iron Trimmers'.75&10@75&10&5%
Swedes Iron Miners'...75&10@75&10&5%
Swedes Iron Bill Posters' or Railroad, 75&10@75&10&5%
Swedes Steel (Swedes Iron price list), 80@80&5%
Copper Tacks.....50&10%
Copper Finishing, Trunk and Clout Nails.....50&10%
Finishing Nails.....70&10@70&10&5%
Trunk and Clout Nails..70&10@70&10&5%
Tinned Trunk and Clout Nails, 70&10@ 70&10&5%
Basket Nails.....70&10@70&10&5%
Common and Patent Brads, 70&10@70& 10&5%
Hungarian Nails.....70&10@70&10&5%
Chair Nails.....70&10@70&10&5%
Zinc Glaziers' Points.....50@50&5%
Cigar Box Nails.....50&10@50&10&5%
Picture-Frame Points...50&10@50&10&5%
Looking-Glass Tacks...50&10@50&10&5%
Leathered Carpet.....50&10@50&10&5%
Brush Tacks.....50&10@50&10&5%
Shoe Finders,' List Jan. 2, 1888, 10&10@ 10&10&5%
Lining and Saddle Nails, List Jan. 1, 1886:
Silvered.....30&10&10%
Japanned.....20&10&10%
Double-Pointed Tacks.....85%
Wire Carpet Nails.....50&10%
Wire Brads & Nails, see Nails, Wire.
Steel-Wire Brads, R. & E. Mfg. Co.'s list.....50&10%

Tap Borers—
Common and Rind.....20&10%
Ive's Tap Borers.....33⅓&5%
Enterprise Mfg. Co.....20&10@30%
Clark's.....33⅓@35%

Tapes, Measuring—
American.....25&10%
Spring.....40%
Chesterman's, Regular list.....25@30%

Thermometers—
Tin Case.....80@80&10%

Thimble Skeins—See Skeins.

Ties, Bale—Steel
Standard Wire, list.....50&10&5%

Tinners' Shears, &c.—
Shears and Snips (P. S. & W.).....20@25%
Punches, see Punches.
Snips, J. Mallinson & Co.....33⅓%

Tinware—
Stamped, Japanned and Pieced, list Jan. 20 1887.....75&75&5

Tire Benders, Upsetters, &c—
Stoddard's Lightning Tire Upsetters..15%
Detroit Perfected Tire Bender.....15%

Tobacco Cutters—
Champion.....25&10@30%
Wood Bottom.....℔ doz $5.00@$5.25
All Iron.....℔ doz $4.25
Nashua Lock Co's ℔ doz, $18.00 50@55%
Wilson's.....55%
Sargent's.....℔ doz, $24, 55&10%
Acme.....℔ doz, $20.00,40%

Transom Lifters—
Wollensak's:
Class 3 and 4, Bronzed Iron.....50%
Class 3 and 4, Bronze Metal.....25%
Class 3 and 4, Brass.....35%
Skylight Lifters.....35%
Crown, Eagle and Shield.....50%
Reiher's, list Jan. 1, 1887-
Bronzed Iron Rods.....50&10&2
Brass, Real Bronze or Nickel Plate..30%
Excelsior.....50&10&2%
Shaw's.....50&10%
Payson's Universal.....40@40&10%

Traps—
Game—
Newhouse.....35@40&5%
Oneida Pattern.....70@70&5%
Game, Blake's Patent.....40&10&5%
Mouse and Rat—
Mouse Wood, Choker, ℔ doz holes, 11@12¢
Mouse, Round Wire.....℔ doz $1.50, 10%
Mouse, Cage, Wire.....℔ doz $2.50, 10%
Mouse, Catch-'em-alive....℔ dz $2.50, 15%
Mouse, Bonanza.....℔ gr $19.00
Mouse Delusion.....℔ gr $15.00
Rat, Decoy.....℔ gr $10.00, 10%
Ideal.....℔ gr $10.00
Cyclone.....℔ gr $5.25
Hotchkiss Metallic Mouse, 5-hole traps, ℔ doz 90¢
In full cases.....℔ doz 75¢

Trowels—
Lothrop's Brick and Plastering.25@25&5%
Reed's Brick and Plastering.....15%
Disston's Br'k and Plastering, 25@25&10%
Peace's Plastering.....25%
Clement & Maynard's.....20%
Rose's Brick.....15@20%
Brade's Brick.....25%
Worrall's Brick and Plastering.....20%
Garden.....70%

Triers—
Butter and cheese.....25%

Trucks, Warehouse, &c.—
B. & L. Block Co.'s list, '82.....40%

Tubes, Boiler—
See Pipe.

Twine—

Flax Twine—	BC.	B.
No. 9, ¼ and ½ ⅌ Balls.....	22¢	30¢
No. 12, ¼ and ½ ⅌ Balls.....	21¢	29¢
No. 18, ¼ and ½ ⅌ Balls.....	18¢	28¢
No. 24, ¼ and ½ ⅌ Balls.....	18¢	28¢
No. 36, ¼ and ½ ⅌ Balls.....	16¢	27¢
No. 264, Mattrass, ¼ and ½ ⅌ Balls.	48@50¢	
Chalk Line, Cotton, ½ ⅌ Balls.....	25¢	
Mason Line, Linen, ½ ⅌ Balls.....	55¢	

2-Ply Hemp, ¼ and ½ ⅌ Balls (Spring Twine).....11½¢
3-Ply Hemp, 1 ⅌ Balls.....12¢@12½¢
3-Ply Hemp, 1½ ⅌ Balls.....11¢@11½¢
Cotton Wrapping, 5 Balls to ⅌..15¢@16¢
2, 3, 4 and 5-Ply Jute, ½ ⅌ Balls.....10¢
Wool.....6½¢@6¾¢
Paper.....13¢@14¢
Cotton Mops, 6, 9, 12 and 15 ⅌ to doz..18¢

Vises—
Solid Box.....60@60&5%
Parallel—
Fisher & Norris Double Screw.....15&10%
Stephens'.....25&30%
Parker's.....20@25%
Wilson's.....55%
Howard's.....40%
Bonney's.....40&10%
Millers Falls.....40@40&10%
Trenton.....40&5@40&10%
Merrill's.....15@20%
Sargent's.....60&10&10%
Backus and Union.....40%
Double Screw Leg.....15&10%
Prentiss.....20@25%
Simpson's Adjustable.....40%
Moore's.....20%

Saw Filers—
Bonney's, Nos. 2 & 3, $15.00.....40&10%
Stearn's.....33⅓&10@33⅓&10&10%
Stearn's Silent Saw Vises.....33⅓@35%
Sargent's.....66⅔&10%
Hopkins'.....℔ doz $17.50, 10%
Reading.....40&10%
Wentworth.....20&10%
Combination Hand Vises.....℔ gr $42.00
Cowell Hand Vises.....20%
Bauer's Pipe Vises.....10%

Wagon Boxes—
Per ⅌.....2¼¢

Wagon Jacks—
Daisy.....25%

Washer Cutters—
Smith's Pat.....℔ doz $12.00, 20&10&10%
Johnson's.....℔ doz $11.00, 33⅓%
Penny's.℔ doz Pol. $14; Jap'd, $16.00, 55%
Appleton's.....℔ doz $16.00, 60&10%
Bonney's.....30&10%

Washers—

Size.....	½	5-16	⅜	½	⅝	¾	1
Washers....	6½	5½	4½	3½	3	3	3

In lots less than 200 ⅌, ℔ ⅌, add ¼¢, 5-⅌ boxes 1¢ to list.

Wedges—
Iron.....℔ ⅌ 3½¢
Steel.....℔ ⅌ 4 ¢

Well Buckets, Galvanized—
Hill's.....℔ doz, 12 qt, $4.25; 14 qt, $5.25
Iron Clad.....℔ doz, 14 qt, $4.25@$4.50
Whiting's Flat Iron Band.....$4.25@$4.50
Whiting's Wired Top..℔ doz $4.00@.4.25

Well Wheels—
8 in., $2.25; 10 in., $2.70; 12 in., $3.25

Wire—
Iron—
Market,
Br. & Ann., Nos. 0 to 18....75@75&10%
Cop'd, Nos. 0 to 18.....70@70&10%
Galv., Nos. 0 to 18.....25&10%
Tin'd, Tinned list Nos. 0 to 18.....70%
Stone,
Br. and Ann'd, Nos. 16 to 18, 72½@ 75@75&5%
Bright and Ann'd, Nos. 19 to 26, 75@ 75&10%
Br. and Ann'd, Nos. 27 to 36..... 80%
Tinned.....70&10@75%
Tinned Broom Wire.....70&10@75%
Galvanized Fence.....65&5%
Annealed Fence, Nos. 8 and 9.....75&5%
Annealed Grape, Nos. 10 to 14.....75&5%
Brass, list Jan. 18, 1884.....25@30%
Copper, list Jan. 18, 1884.....30@35%
Barb Fence.....See Trade Report
Wire on Spools.....65%
Malin's Steel and Tin'd Wire on Spools. 40%
Malin's Brass and Cop. Wire on Spools 30%
Cast Steel Wire.....50%
Stubs' Steel Wire.....$6.00 to $, 30%
Steel Music Wire, Nos. 12 to 30..55¢ ℔
Picture Wire.....New list, 50%
Barb Wire Safety Guards, ℔ 1000, $9.00, 25%
Wire Clothes Lines, see Lines.

Wire Cloth, Netting, &c.
Painted Screen Cloth, good quality, ℔ 100 sq. ft., $1.80 @ $1.90
Galvanized Wire Netting.....75@75&5%

Wire Goods—
See Bright Wire Goods.

Wire Rope—
List May 1, 1886.
Iron.....30%
Cast Steel.....40%

Wrenches—
American Adjustable.....40%
Baxter's Adjustable "S".....40&10@50%
Baxter's Diagonal.....40&10@50%
Coes' Genuine.....55&3%
Coes' "Mechanics'".....55&10&3%
Girard Standard.....70&10%
Machinists', Sterling Wrench Co..70&10%
Lamson & Sessions' Engineers'...60&10%
Lamson & Sessions' Standard.....70&10%
Goes' Pattern, Wrought } 75&10&5
Girard Agricultural } @ 80%
Lamson & Sessions' Agric'l } 75&10&5
Sterling Wrought } @ 80%
Bemis & Call's
Pat. Combination.....35%
Merrick's Pattern.....35%
Brigg's Pattern.....25%
Cylinder or Gas Pipe.....40&5%
No. 3 Pipe.....40&10%
Aiken's Pocket (Bright).....$6.00, 50&10%
The Favorite Pocket.....℔ doz $4.00, 40%
Webster's Pat. Combination.....25%
Boardman's.....20&10%
Always Ready.....25&5%
Alligator.....50%
Donohue's Engineer.....20&10%
Acme, Bright.....60&3%
Acme, Nickeled.....50&3%
Walker's.....55&3%
Diamond Steel.....55&3%

Wringers, Clothes—
List March 11, 1889, 2% cash.

Wrought Goods—
Staples, Hooks, &c, list Jan. 12, 1886, 80&20@80&20&25%

CURRENT METAL PRICES.

AUGUST 7, 1889.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market reports.

IRON AND STEEL.

Bar Iron from Store.

Common Iron:		
¾ to 2 in. round and square.. / 1 to 6 in. x ⅝ to 1 in.	₩ ℔ 1.90 @ .. ¢	
Refined Iron:		
¾ to 2 in. round and square.. / 1 to 4 in. x ⅜ to 1½ in.	₩ ℔ 2.00 @ 2.10¢	
4½ to 6 in. x ⅜ to 1 in		
1 to 6 in. x ¼ and 5-16	₩ ℔ 2.20 @ 2.30¢	
Rods—⅝ and 11-16 round and sq.	₩ ℔ 2.10 @ 2.20¢	
Bands—1 to 6 x 3-16 to No. 12	₩ ℔ 2.20 @ 2.30¢	
"Burden Best" Iron, base price	₩ ℔ 3.00 @ ... ¢	
Burden's "H. B. & S." Iron, base price	₩ ℔ 2.80 @ ....¢	
"Ulster"	₩ ℔ 3.00 @ ....¢	
Norway Rods	4.00 @ 5.00¢	

Merchant Steel from Store.

	Per pound.
Open-Hearth and Bessemer Machinery, Toe Calk, Tire and Sleigh Shoe, base price in small lots	2½¢
Best Cast Steel, base price in small lots	8 ¢
Best Cast Steel Machinery, base price in small lots	5¢

Sheet Iron from Store.

	Common American.	R. G.	Cleaned.
10 to 16	₩ ℔ 2.75 @ 2.80¢	3.25	@ .....¢
17 to 20	₩ ℔ 2.85 @ 3.00¢	3.25	@ 3.50 ¢
21 to 24	₩ ℔ 3.00 @ 3.10¢	3.50	@ .....¢
25 and 26	₩ ℔ 3.20 @	3.50	@ .....¢
27	₩ ℔ 3.35 @ 3.37½¢	3.75	@ .....¢
28	₩ ℔ 3.50 @ .. ..¢	4.00	@ .....¢
	B. B.		2d qual.
Galv'd, 14 to 20,	₩ ℔, 4.50 @	4.38	@ .....¢
Galv'd, 21 to 24,	₩ ℔, 4.87½ @	4.75	@ .....¢
Galv'd, 25 to 26,	₩ ℔, 5 25 @	5.12	@ .....¢
Galv'd, 27	₩ ℔, 5.62½ @	5.48	@ .....¢
Galv'd, 28	₩ ℔, 6.00 @	5.85	@ .....¢
Patent Planished	₩ ℔ A 10¢		B, 9¢
Russia	₩ ℔ 9½¢ @ 10¢		
American Cold Rolled B. B	₩ ℔ 5¢ @ 7¢		
Craig Polished Sheet Steel	₩ ℔, 8¢		

English Steel from Store.

Best Cast	₩ ℔ 15 ¢
Extra Cast	₩ ℔ 16½ @ 17 ¢
Swaged, Cast	₩ ℔ 16 ¢
Best Double Shear	₩ ℔ 15 ¢
Blister, 1st quality	₩ ℔ 12 ¢
German Steel, Best	₩ ℔ 10 ¢
2d quality	₩ ℔ 9 ¢
3d quality	₩ ℔ 8 ¢
Sheet Cast Steel, 1st quality	₩ ℔ 15 ¢
2d quality	₩ ℔ 14 ¢
3d quality	₩ ℔ 12½¢

METALS.

Tin.

	Per ℔
Banca, Pigs	22 ¢
Straits, Pigs	21½¢
English, Pigs	22 ¢
Straits in Bars	23 ¢

Tin Plates.

Charcoal Plates.—Bright.

		Per box.
Melyn Grade	IC, 10 x 14.. $5.75	@ $6 00
" "	IC, 12 x 12.. 6.00	@ 6.25
" "	IC, 14 x 20.. 5.75	@ 6.00
" "	IC, 20 x 28.. 12.00	@ 12.50
" "	IX, 10 x 14.. 7.25	@ 7.50
" "	IX, 12 x 12.. 7.50	@ 7.75
" "	IX, 14 x 20.. 7.25	@ 7.50
" "	IX, 20 x 28.. 15.00	@ 15 50
" "	DC, 12½ x 17.. 5 50	@ 5.75
" "	DX, 12½ x 17.. 7.00	@ 7.25
Call and Grade	IC, 10 x 14.. 5.75	@ 6.00
" "	IC, 12 x 12.. 6.00	@ 6.25
" "	IC, 14 x 20.. 5.75	@ 6.00
" "	IX, 10 x 14.. 7.25	@ 7.50
" "	IX, 12 x 12.. 7.50	@ 7.75
" "	IX 14 x 20. 7.25	@ 7.50
Allaway Grade	IC, 10 x 14.. 5.00	@ 5.12½
" "	IC, 12 x 12.. 5.12½	@ 5.25
" "	IC, 14 x 20.. 5.00	@ 5.12½
" "	IC, 20 x 28.. 11.00	@ ....
" "	IX. 10 x 14.. 6.00	@ ....
" "	IX, 12 x 12.. 6.25	@ ....
" "	IX, 14 x 20.. 6.00	@ ....
" "	IX, 20 x 28.. 12.00	@ ....
" "	DC, 12½ x 17.. 4.75	@ 5.00
" "	DX, 12½ x 17.. 5.75	@ 6.00

Coke Plates.—Bright.

Steel Coke.—IC, 10 x 14, 14 x 20..	$4.75	@ $5.00
10 x 20..	7.25	@ 7.50
20 x 28..	9.75	@ 10.25
IX, 10 x 14, 14 x 20..	5.50	@ 5.75
BV Grade.—IC, 10 x 14, 14 x 20..	4.40	@ 4.60

Charcoal Plates.—Terne.

Dean Grade.—IC, 14 x 20..	$4.35	@ $4.62½
20 x 28	8.75	@ 9.25
IX, 14 x 20	5.40	@ 5.62½
20 x 28	11.00	@ 11.37½
Abecarne Grade.—IC, 14 x 20	4.25	@ 4.50
20 x 28	8.45	@ 9.00
IX, 14 x 20	5.25	@ 5.50
20 x 28	10.50	@ 10.80

Tin Boiler Plates.

IXX, 14 x 26	112 sheets.	$12.50 @ $12.75
IXX, 14 x 28	112 sheets	12 75 @
IXX, 14 x 31	112 sheets	14.25 @

Copper.

Duty: Pig, Bar and Ingot, 4¢; Old Copper, 3¢ ₩ ℔. Manufactured (including all articles of which Copper is a component of chief value), 45 % ad valorem.

Ingot.

Lake	@ 13½¢
"Anchor" Brand	@ 12½¢

Sheet and Bolt.

Prices adopted by the Association of Copper Manufacturers of the United States, May 23, 1889, being quotations for all sized lots.

Not wider than	Not longer than	And longer than	Over 64 oz.	32 to 64 oz.	16 to 32 oz.	14 to 16 oz.	12 to 14 oz.	10 to 12 oz.	8 to 10 oz.	Less than 8 oz.
			Weights per square foot and prices per pound.							
30	72		20	20	20	21	22	23	26	28
30		72	20	20	20	21	23	25	29	...
36	96		20	20	20	22	24	28	30	....
36		96	20	20	21	23	25	29	31	....
48	96		20	20	22	24	26	30	....	....
48		96	20	20	23	25	27	31	....	....
60	96		20	20	25	27	32	....	....	....
60		96	20	21	26	....	....	....	....	....
84	96		21	22	..	....	....	..	....	....
84		96	22	23	..	....	....	..	....	....
Over 84 in. wide			23	25	...	....	....	....	....	....

	16 oz.	14 oz.	12 oz.	10 oz
All Bath Tub Sheets				
Per pound	$0.23	0.25	0.27	0 30

Bolt Copper, ⅝ inch diameter and over, per pound ....20¢

Circles, 60 inches in diameter and less, 3 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles, over 60 inches diameter, up to 96 inches diameter, inclusive, 5 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Circles, over 96 inches diameter, 6 cents per pound advance over lowest prices of Sheet Copper of the same thickness.

Segment and Pattern Sheets, 3 cents per pound advance over price of sheets required to cut them from.

Cold or Hard Rolled Copper, 14 ounces per square foot and heavier, 1 cent per pound over the foregoing prices.

Cold or Hard Rolled Copper, lighter than 14 ounces per square foot, 2 cents per pound over the foregoing prices.

Copper Bottoms, Pits and Flats.

	Per pound.
14 ounce to square foot and heavier	23¢
12 ounce and up to 14 ounce to square foot	24¢
10 ounce and up to 12 ounce	26¢

Circles less than 8 inches diameter 2 cents per pound additional.

Circles over 13 inches diameter are not classed as Copper Bottoms.

Tinning.

Tinning sheets on one side, 10, 12 and 14 x 48 each	8¢
Tinning sheets on one side, 30 x 60 each	30¢
For tinning boiler sizes, 9 in (sheets 14 in. x 60 in.), each	15¢
For tinning boiler sizes, 8 in. (sheets 14 in. x 56 in.), each	12¢
For tinning boiler sizes, 7 in. (sheets 14 in. x 52 in.) each	12¢
Tinning sheets on one side, other sizes, per square foot	2½¢

For tinning both sides double the above prices.

Planished Brass and Copper.

14 x 48.

14 and 16 oz. and heavier..31¢. By the case...30¢ ₩ ℔
12 oz. and lighter.....32¢. By the case...32¢ ₩ ℔

24 x 48 and 30 x 60.

14 and 16 oz. and heavier..44¢. 12 oz.....37¢ ₩ ℔

Seamless Brass and Copper Tubes.

O. G.	N. G.	⅜	½	⅝	¾	⅞	1	1½
8-14	6-12	35	31	28	27	26	25	22
15	13	36	31	29	28	27	26	23
16	14	37	32	30	29	28	27	23
17	15	38	33	31	30	29	28	24
18	16	40	34	32	30	29	28	25
19	17	41	35	33	32	31	30	27
20	18-19	42	37	35	34	33	32	29
21	20	44	39	37	36	35	34	32
22	21	46	40	38	37	36	35	34
23	22	48	42	40	39	38	37	37
24	23	51	44	42	41	39	38	39
25	24	54	47	44	43	42	41	43

Copper, Bronze and Gilding Tube, 2¢ ₩ ℔ additional.

Brazed Brass Tubing. (To No. 20, inclusive.)

Above 5-16 inch to 3 inch, inclusive	35¢
Plain, above 3 inch	45¢
Plain, 5-16 inch	45¢
Plain, ¼ inch	60¢
Plain, 3-16 inch	$1.00
Plain, ⅛ inch	1.50
Fancy Tubing, Brass, to No. 20, inclusive	43¢ ₩ ℔

Bronze Tubing, 3¢ ₩ ℔ more than Brass.

Discount from list ....25 @ 30 %

Roll and Sheet Brass.

Discount from list ....25 @ 30 %

High Brass Rods.

Over 1 inch diameter	27¢
½ inch to 1 inch diameter, both inclusive	24¢
No. 8 and less than ¼ inch diameter	26¢
Smaller than No. 8	30¢

Hexagon, Octagon and Square, 2¢ ₩ ℔ advance over Round Rods.

Spelter.

Duty: Pig, Bars and Plates, $1.50 ₩ 100 ℔.

Western Spelter	5½¢ @ 6¢
"Bergenport"	.8¢
"Bertha"	7¾ @ 8¢

Zinc.

Duty; Sheet, 2½¢ ₩ ℔.

600 ℔ casks	6½¢
Per ℔	7¼¢

Lead.

Duty: Pig, $2 ₩ 100 ℔. Old Lead, 2¢ ₩ ℔. Pipe and Sheets, 3¢ ₩ ℔.

American	4½¢
Newark	4½¢
Bar	4½¢
Pipe, subject to trade discount	6 ¢
Tin-Lined Pipe, subject to trade discount	15¢
Block Tin Pipes, subject to trade discount	45¢
Sheet, subject to trade discount	6¾¢

Solder.

½ @ ½ (Guaranteed)	14½¢
Extra Wiping	12½¢

The prices of the many other qualities of Solder in the market indicated by private brands vary according to composition.

Antimony.

Cookson	₩ ℔ 17¢
Hallett's	" 16¢

Fittings.

Cast Iron Fittings, Black and Galvanized	75&10 %
Cast Iron Fittings, Bushings and Plugs	80 %
Cast Iron Fittings, Flanges	75&10 %
Malleable Iron Bushings	80@80&5 %
Malleable Iron Unions	70@70&5 %
Malleable Iron American Unions	55 %
Malleable Iron Unions, Keystone	55 %
Wrought-Iron Nipples	75&10 %
Wrought-Iron Couplings	70 %
Wrought-Iron Long Screws	70@70&5 %
Casing Fittings	60 %
Malleable Iron Fittings	40@40&5 %

Valves, Cocks, &c.

Iron Body Valves	70 %
Throttle Valves, Iron Body	70 %
All-Iron Valves	65 %
Compression Gauge Cocks	60 %
Mississippi Gauge Cocks	60 %
Register Gauge Cocks	65@65&10 %
Air Cocks and Radiator Air Cocks	65@65&10 %
Steam Gauge Cocks	60 %
Oil Cups, Plain, Elbow, new pattern, T and Lever Handle	65@65&10 %
Globe Oil Cups	55 %
Common Lubricators	65@65&10 %
Lubricators with Air Cocks	65@65&10 %
Iron Body Lubricators	60 %
Steam Whistles	65 %
Whistle Valves	65 %
Water Gauges	65 %
Brass Expansion Joints	55 %
Pump Valves	55 %
Soldering Unions	65 %
Soldering Nipples	70 %
Brass Unions (Union Joints)	65 %
Radiator Nipples	60 %
Fusible Plugs	60 %
Oil Pumps	55 %
Self-Acting Air Valves	65 %
Vacuum Valves	55 %
Steam Swing Joints	55 %
Iron Strainers	55&10 %
Jenkins' Iron Body Valves, except Gate Valves	60&10 %
Jenkins' All-Iron Valves, except Gate Valves	60 %
Jenkins' Iron Body Gate Valves	55 %
Jenkins' All-Iron Gate Valves	55 %
Iron Cocks, all Iron	65 %
Iron Cocks, with Brass Plugs	65 %
Brass Globe, Angle and Cross Valves	65 %
Brass Globe Valves, Finished	45 %
Brass Globe and Angle Valves, hose outlet	65 %
Brass Garden Hose Valves	65 %
Brass Caps for Hose Valves	60 %
Brass Horizontal, Vertical and Angle Check Valves	65 %
Brass Safety Valves	65 %
Brass Safety Valves, low pressure	65 %
Brass Safety Valves, low pressure, with balance weight	65 %
Brass Butterfly Valves	55 %
Brass Throttle Valves	55 %
Brass Radiator Valves	65 %
Brass Radiator Valves, Jenkins'	65 %
Brass Jenkins' Globe, Angle, Cross, Corner, Safety and Check Valves	65 %
Brass Jenkins' Gate Valves	50 %
Brass Steam Cocks	60 %
Brass Gas, Meter and Union Meter Cocks	60 %
Brass Fittings, Rough	60 %
Brass Fittings, Finished	25 %
Brass Bushings	60

Plumbers' Brass Work.

Ground Key Work, Rough	60 %
Ground Key Work, Finished	55 %
Compression Work	60@60&5 %
Compression Work, Grundy, Heavy Pattern	55 %
Chain Stays	60 %
Basin Plugs	60 %
Sink or Bath and Wash Tray Plugs	60 %
Basin Clamps	55 %

FRENCH GLASS.

Per Box 50 feet.

	Sizes	Single. 1st.	2d.	3d.	4th.
		E F H	I E H	H H	H B
25	6 x 8 to 10 x 15	$10.50	$9.00	$8.50	$8.00
40	11 x 14 to 16 x 24	11.50	10.75	10.25	9.75
50	18 x 22 to 20 x 30	15.50	14.00	13.00	12.50
54	15 x 36 to 24 x 30	16.50	15.00	13.50	.....
60	26 x 28 to 24 x 36	17.75	16.25	14.75	.....
70	26 x 36 to 26 x 44	19.00	17.50	15.25	.....
80	26 x 46 to 30 x 50	21.00	19.50	17.00	.....
84	30 x 52 to 30 x 54	22.00	20.25	18.00	.....
90	30 x 56 to 34 x 56	23.00	21.25	19.00	....
94	34 x 58 to 34 x 60	24.00	22.75	21.00	.....
100	36 x 60 to 40 x 60	26.50	24 50	23.00	.....